STORAGE TANK PROGRAM TECHNICAL MANUAL

DEQ Guidance Document # 01-2024

(Third Edition, October 4, 2001)

Commonwealth of Virginia
Department of Environmental Quality

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Change 2 Third Edition of Volumes I and II of the Virginia Petroleum Storage Tank Fund Reimbursement Guidance Manual

Effective Date: February 8, 2000

New Usual and Customary Rates (UCRs) were developed for oxygen release (ORC) socks and canisters, rough terrain forklifts, and analyses of Biochemical Oxygen Demand by Method 1440. UCRs were also developed for various utility permits and fuel fees.

Change 3. Petroleum Product Chemistry

Most the releases overseen by the DEQ Storage Tank Program involve petroleum products. The purpose of this section is to provide information to staff about the general chemical make-up of various petroleum products and the primary constituents of concern in these products. Information is also provided about antifreeze and ethanol which are non-petroleum products. Please see Appendix AA for additional information about petroleum product chemistry.

Change 4. VDOT and Future Use

The Virginia Department of Transportation (VDOT) often initiates new road construction projects and/or upgrades to existing roads. As a result of these activities, VDOT may encounter contamination from sites that were closed by the DEQ Storage Tank Program. VDOT is slightly different than most other entities in that they do not have to file building plans with local governments. VDOT does, however, have a "Six Year Plan" that outlines future road construction projects. In order for DEQ to consider a VDOT project to be a known future use, the project must: (1) be included in the Six Year Plan; and (2) be funded.

Change 5. Relationship Between the Storage Tank Program and the Voluntary Remediation Program

The investigation and remediation of petroleum or regulated substances released from regulated USTs and the cleanup of oil discharges required under Article 11 of Virginia Water Control Law will be overseen by the DEQ Storage Tank Program. Responsible persons or other individuals wishing to obtain a "Certification of Satisfactory Completion of Remediation" from the VRP may enroll in the VRP only **after the Storage Tank Program has closed the case**. For additional information, please see Section 5.9.

Change 6. Confirmed Releases with a DEQ Determination of No Further Action

When a release occurs from a storage tank and is reported to DEQ, the DEQ Storage Tank Program will, as a matter of course, require the tank owner/operator to characterize the release and determine risks from the release to human health and the environment. Storage Tank Program staff may, however, close a confirmed release site without having a Site Characterization Report from the tank owner/operator if the Case Manager is confident that there is enough information to characterize the release and determine that the release poses no significant threat to human health and the environment.

Change 7. Applicability of Articles 9, 10, and 11 to Releases at Former Manufactured Gas Plants

Former manufactured gas plants may be found in many of the cities and towns throughout the Commonwealth and contamination from these sites is often encountered by DEQ staff. These sites pose special challenges for Storage Tank Program staff due to the mixture of contaminants that may be found as well as the regulatory framework within which cleanups may be conducted.

Historically, investigations and cleanups at these facilities have been overseen by the Superfund or Voluntary Remediation Programs and this remains the preferred course of action. The DEQ Storage Tank Program may oversee the cleanup of oils and tars at these sites under Article 11 of Virginia Water Control Law and, possibly, Article 9 of Virginia Water Control Law. Please see Section 2.11 and Appendix Y for additional information.

Change 8. Releases Suspected by Inconclusive Statistical Inventory Reconciliation Results

Statistical Inventory Reconciliation (SIR) is a method that tank owners/operators may use to meet the leak detection requirement of the UST Technical Regulation. Inconclusive SIR results pose a problem in that they fail to meet the regulatory requirement for leak detection. The DEQ Storage Tank Program will, as a matter of practice require tank owners/operators to perform a release investigation to determine if a tank is leaking when:

1. SIR results for two consecutive months are inconclusive; or
2. There are three inconclusive SIR results during any six month period.

For additional information, please see Section 2.1.1.1.

Change 9. Releases Suspected by Interstitial Monitoring

Interstitial monitors may be used to check the area between a tank and its secondary containment system for leaks in the product-containing tank. Recommendations for when DEQ Storage Tank Program staff should require tank owners/operators to conduct a release investigation as a result of interstitial monitoring results is presented in Section 2.1.1.2.

Change 10. Appendix L. Types of Activities and Costs That Are Not Eligible for Reimbursement has been deleted

Appendix L, a list of costs that are not eligible for reimbursement is redundant with the same list in Volume I of the Reimbursement Manual and has been deleted. Regional Case Managers may see the attachment to the AAF Verification Form for a list of the types of ineligible costs that might be noticed during the process of approving and/or verifying AAFs. The list of ineligible costs in Volume I of the Reimbursement Manual is larger than the list attached to the Verification Form and includes items that are not likely to be noticed by regional Case Managers during the AAF approval and verification processes.

Change 11. Public Notice Guidance when Corrective Actions Change After the Site Goes Through Public Notice

Staff, responsible persons, and consultants have raised questions about the need to provide additional public notice when corrective actions change after the original public notice. Please see Section 5.7.3.1.2 for additional information.

Change 12. Guidance on the Applicability of Article 11 to Discharges of CERCLA Regulated Substances

The definition of oil listed in Article 11 of Virginia Water Control Law includes "all liquid hydrocarbons regardless of specific gravity." This definition has created confusion about the applicability of Article 11 to discharges of hydrocarbon liquids (e.g. toluene, xylenes) that are also CERCLA regulated substances. Historically, the DEQ has made a distinction between oil and hazardous substances (i.e. CERCLA regulated substances) and taken the position that CERCLA regulated substances (substances listed in § 101(14) of CERCLA) will not be considered "oils" under Article 11. We believe that this interpretation is consistent with the major environmental laws and should be utilized by staff when deciding whether Article 11 is appropriate for a particular discharge. See Section 2.13 and Appendix AB for additional information.

Change 13. Releases of CERCLA Defined Hazardous Substances from Regulated USTs

Releases of CERCLA defined hazardous substances from regulated USTs may be managed by the Storage Tank Program under the UST Technical Regulation. These releases may also be subject to the corrective action requirements under RCRA Subtitle C if the facility from which the release occurred has or should have a hazardous waste permit. Staff should check with the DEQ Regional Hazardous Waste Inspector to determine if the facility has a hazardous waste permit. Please see Section 2.12 for additional information.

Change 14. Releases/Discharges of Used Oil

The DEQ Storage Tank Program typically oversees the cleanup of used oils under the UST Technical Regulation or Article 11 depending upon the source. When a release of used oil is reported, the Storage Tank Program will oversee the cleanup of that oil under Article 11 or the UST Technical Regulation unless the tank owner/operator provides information indicating that the used oil is a hazardous waste. Additional information and a flowchart are provided for determining if used oil is a hazardous waste. Please see Sections 2.14 through 2.14.3.

Change 15. Procedures for Responding to Discharges from Small Heating Oil Tanks

The DEQ Storage Tank Program has separated discharges from heating oil tanks having a capacity of 1000 gallons or less (small heating oil tanks) into four categories based upon the nature of the discharge, site conditions, and probable risks posed by the discharge. Please see Section 5.4.4 through 5.4.4.5 for additional information.

1.0 INTRODUCTION

This document is the Third Edition of the Storage Tank Program Technical Manual which was first issued on May 9, 1997. This edition describes current DEQ procedures and guidelines for addressing releases of petroleum and regulated substances from storage tanks. This guidance manual replaces Revision 2 of the Storage Tank Program Technical Manual issued May 3, 1999. All earlier revisions and manuals should be used for historical information only.

The procedures and guidelines contained within this manual are intended to: (1) protect human health and the environment within the Commonwealth through efficient and effective response to storage tank releases; (2) promote state wide consistency in the implementation of release response and corrective action; and (3) reduce time and expenses needed to complete release response and corrective action by determining necessary actions (to the extent possible) and by defining the scope of work prior to initiation of that work. The Department is committed to protecting human health and the environment and serving the citizens of the Commonwealth in a timely and efficient manner.

The primary focus of this manual is to provide guidance on closure, release response and corrective action requirements for Underground and Aboveground Storage Tanks containing petroleum or oil. The procedures are also applicable to regulated Underground Storage Tanks (USTs) containing nonpetroleum regulated substances. Since less than one percent of the regulated USTs registered with DEQ contain substances other than petroleum, the manual does not discuss in great detail the specific requirements for non-petroleum regulated USTs. Unless specifically noted otherwise, the regulated UST procedures in this manual apply to both petroleum and non-petroleum regulated substances. Guidelines contained within this manual were also developed to conform with reimbursement guidance to responsible parties (The Virginia Petroleum Storage Tank Fund Reimbursement Guidance Manual).

This manual was developed jointly by Central and Regional Office staffs and is intended as a guidance document for DEQ personnel. Consultants and persons in the regulated community may also find this manual a useful resource and it will be made available to the public upon request.

1.1 REGULATORY/STATUTORY FRAMEWORK FOR STORAGE TANK CLEANUP

During the course of administering the storage tank program and providing oversight for releases from storage tanks, DEQ staff have the opportunity to interface with many statutes and regulations. Listed below are short descriptions of some of the statutes and regulations that staff may deal with on a regular basis.

Article 9 of State Water Control Law (Code of Virginia, Section 62.1-44.34:8 through 9) - Article 9 provides DEQ with the authority to: (1) establish technical standards for USTs containing petroleum and regulated substances; (2) require the owner or operator of an UST to take corrective actions for a release of petroleum or regulated substance; and (3) seek recovery of costs incurred for undertaking corrective action or enforcement actions. This statute requires DEQ to promulgate regulations needed to carry out its duties with regard to USTs.

Article 11 of State Water Control Law (Code of Virginia, Section 62.1-44.34:14 through 23) - Article 11 prohibits the discharge of oil into state waters (and upon state lands and into storm drains) and provides DEQ with the authority to require the cleanup of oil discharges from most sources other than USTs covered under Article 9. Under Article 11, operators of certain types of facilities and vessels are required to develop oil discharge contingency plans and demonstrate financial responsibility. Article 11 also requires the Board to develop regulations for aboveground storage tanks. Persons discharging oil into state waters are required to report the discharge and contain and clean up that discharge.

9 VAC 25-580-10, et seq. Underground Storage Tanks; Technical Standards and Corrective Action Requirements - The UST technical regulations address technical standards for UST system design, installation, operation, release detection, and closure. The technical regulations also contain requirements for release reporting, investigating suspected releases, and corrective action. The regulations also require owners or operators of USTs to notify DEQ of the presence of these tanks.

9 VAC 25-120-10 et seq. General Virginia Pollutant Discharge Elimination System (VPDES) Permit Regulation for discharges from Petroleum Contaminated Sites - This general permit regulation governs the discharge of wastewater from sites contaminated by petroleum products. This regulation replaced the CAP General Permit Regulation on February 24, 1998.

9 VAC 20-80-10, et seq. Virginia Solid Waste Management Regulations - The solid waste management regulations establish standards for the handling of solid wastes, the disposal of solid waste, and the siting of solid waste management facilities. Staff may interface with the requirement of these regulations when dealing with the management or disposal of petroleum contaminated soil or debris.

9 VAC 20-60-10, et seq. Virginia Hazardous Waste Management Regulations - The Virginia Hazardous Waste Management Regulations provide for the control of all hazardous wastes generated, treated, stored, disposed, or transported within the Commonwealth. Staff may need to consult these regulations or interface with the hazardous waste inspection staff to determine if a particular waste (e.g. petroleum contaminated water, used oil) may be a hazardous waste.

9 VAC 25-91-10, et seq. Facility and Aboveground Storage Tank (AST) Regulation - The Facility and AST Regulation establishes requirements for registration, notification, and closure of individual ASTs and facilities within Virginia. This regulation also contains pollution prevention requirements, oil discharge contingency plan requirements, and groundwater characterization study requirements for ASTs and facilities. This regulation consolidates the following repealed regulations: the Oil Discharge Contingency Plan regulation (9 VAC 25-990-10, et seq.), the Facility and AST Registration Requirements Regulation (9 VAC 25-130-10, et seq.), and the AST Pollution Prevention Requirements regulation (9 VAC-25-140-10, et seq.).

The authority for most investigative activities and/or remediation involving storage tanks is provided by Article 9, 9 VAC 25-580-10, et seq., and Article 11. Although there are no regulations describing steps to be taken in the assessment and remediation of petroleum releases from ASTs, exempt USTs, or excluded USTs, there is a statutory requirement for these releases to be addressed (Article 11 for ASTs and exempt USTs; Article 9 for excluded USTs). Since corrective action for the assessment and remediation of petroleum releases is similar regardless of source, the manual uses corrective action guidelines which meet the requirement of the UST Technical Regulation. Regional staff members have the flexibility and authority to determine what constitutes reasonable and necessary site-specific corrective action requirements for all regulated substance releases. The DEQ Office of Enforcement and Compliance Auditing may enforce reasonable requirements specified by regional staff for Article 9 and 11 releases that have clearly been communicated to the responsible person.

9 VAC 20-160-10 et seq. The Voluntary Remediation Regulation

The Commonwealth of Virginia developed this regulation and the accompanying Voluntary Remediation Program to allow owners, operators, or others interested in a contaminated property to voluntarily remediate releases of contaminants. Persons having sites contaminated by releases from regulated USTs or discharges of oil that are covered by Article 11 of Virginia Water Control Law may enter the Voluntary Remediation Program after receiving a case closure letter from the Storage Tank Program. For additional information, please see Section 5.9 of the Manual.

1.2 DEFINITIONS

Throughout this manual, the following terms will be used repeatedly. These definitions are provided to allow a greater consistency in their use and interpretation.

Aboveground Storage Tank (AST) - Any one or combination of tanks, including pipes, used to contain an accumulation of oil at atmospheric pressure, and the volume of which, including the volume of the pipes, is more than 90% above the surface of the ground.

Deferred USTs - USTs which are deferred from Parts II - V and VII of 9 VAC 25-580-10 et seq.:

1. Wastewater treatment tank systems (these tanks are not part of a treatment system having or needing a VPDES Permit nor are the contents of these systems discharged to a Publicly Owned Treatment Facility that has a VPDES Permit);
2. UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954 (42 USC 2011 et seq.);
3. USTs that are part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A;
4. Airport hydrant fuel distribution systems; and
5. UST systems with field constructed tanks.

Excluded USTs - The types of USTs which meet the definition of UST under Article 9, but are excluded from the requirements of 9 VAC 25-580-10 et seq.:

1. Any UST system holding hazardous wastes listed or identified under Subtitle C of the Solid Waste Disposal Act, or a mixture of such hazardous waste and other regulated substances;
2. Any wastewater treatment tank system that is part of a wastewater treatment facility regulated under §402 and §307 (b) of the Clean Water Act;
3. Equipment or machinery that contains a regulated substance for operational purposes such as hydraulic lift tanks and electrical equipment tanks;
4. UST systems with a capacity of 110 gallons or less;
5. UST systems that contain a de minimis concentration of regulated substance; and
6. Emergency spill or overflow containment USTs that are expeditiously emptied after use.

Exempt USTs - The types of USTs which are exempt from Article 9 of State Water Control Law and the requirements of 9 VAC 25-580-10 et seq.:

1. Farm or residential tank of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
2. USTs which contain heating oil that is used to heat the premises where the tank is located;
3. Septic tanks;
4. Pipeline facilities;
5. Surface impoundments, pits, ponds, and lagoons;
6. Storm-water or wastewater collection systems;
7. Flow-through process tanks;
8. Liquid traps or associated gathering lines directly related to oil or gas production and gathering operations; and
9. Storage tanks situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

Facility - Any development or installation within the Commonwealth that deals in, stores or handles oil.

Heating Oil AST - An AST with a storage capacity of 5,000 gallons or less which contains heating oil that is used to heat the premises where the tank is located.

Motor Fuel - a petroleum or a petroleum-based substance that is motor gasoline, aviation gasoline, No. 1 or No. 2 diesel fuel, or any grade of gasohol, and is typically used in the operation of a motor engine (this definition is from 40 CFR 280.12).

Oil - Means oil of any kind and in any form including, but not limited to, petroleum and petroleum by-products, fuel oil, lubricating oils, sludge, oil refuse, oil mixed with other wastes, crude oils and all other liquid hydrocarbons regardless of specific gravity.

Partially Deferred USTs - UST systems that store fuel for emergency power generator use. These USTs are deferred from Part IV of 9 VAC 25-580-10.

Regulated Substance - an element, compound, mixture, solution, or substance that, when released into the environment, may present substantial danger to the public health or welfare, or the environment (see Appendix A for a list of regulated substances). The term "regulated substance" includes:

1. Any substance defined in Section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, but not any substance regulated as a hazardous waste under subtitle C of the Resource Conservation and Recovery Act (RCRA) of 1976; and
2. Petroleum, including crude oil or any fraction thereof, that is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute). The term "regulated substance" includes but is not limited to petroleum and petroleum-based substances comprised of a complex blend of conversion, upgrading, and finishing, such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.

Regulated UST - An UST regulated by and subject to all of the requirements of 9 VAC 25-580-10 (Underground Storage Tanks; Technical Standards and Corrective Action Requirements).

Release - Any spilling, leaking, emitting, discharging, escaping, leaching or disposing from an AST or UST into ground water, surface water or subsurface soils.

Tank - a stationary device designed to contain an accumulation of regulated substances and constructed of non-earthen materials (e.g. concrete, steel, plastic) that provide structural support.

Underground Storage Tank (UST) - any one or combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of the underground pipes connected thereto) is 10 percent or more below the surface of the ground. This term does not include any of the exempt USTs.

1.3 DEQ REGIONS

DEQ staff periodically receive calls from responsible persons or consultants requesting phone numbers or addresses of other DEQ Regional Offices. A map of DEQ regions is contained in Appendix B. This map also indicates the address, phone, and fax number for each of the Regional Offices.

2.0 RELEASE REPORTING REQUIREMENTS

When a release occurs from a storage tank, the owner and/or operator of that tank is required to report the release to one or more governmental agencies. Release reporting requirements are dependent upon the statutes and regulations governing the tank system from which the release occurred, the contents of the tank, and the nature of the release. This section provides staff with regulatory requirements and programmatic procedures for dealing with release reports. Table 2-1 (at the end of Chapter 2) summarizes reporting requirements for different types of storage tanks and lists the applicable statute(s) and/or regulation(s).

2.1 RELEASE REPORTING REQUIREMENTS FOR USTS

Owners and operators of regulated USTs and partially deferred USTs are required to report releases from those USTs to DEQ in accordance with Parts V and VI of the UST Technical Regulation. Releases from deferred USTs must be reported to DEQ in accordance with Part VI of the UST Technical Regulation. Reporting requirements of 9 VAC 25-580-10 et seq. apply to all owners and operators of UST systems which meet the definition of "underground storage tank" and are not excluded from the requirements of the regulation under Section 20. Under Article 9 of State Water Control Law and 9 VAC 25-580-10 et seq., both the owner and the operator of an UST are jointly responsible for taking corrective actions in response to a release from an UST and this includes reporting releases. A fact sheet summarizing release reporting requirements is included in Appendix C.

Conditions indicating or potentially indicating a release include:

1. A regulated substance is present in the environment at or near the UST site.
   Regulated substances in contact with or otherwise in the immediate vicinity of an UST are believed to be adequate evidence, in most instances, for confirming a release. The following conditions provide evidence of a regulated substance at or near a site:
   - A. vapors in a building
   - B. sheen on surface water
   - C. seepage of product from the ground
   - D. contamination of nearby drinking water sources such as wells or springs
   - E analytical results indicate the presence of a regulated substance
     - 1a. analytical results from samples collected during the closure of a petroleum storage tank:
       - TPH concentration in soil that is greater than or equal to 100 mg/kg.
       - TPH concentration in water that is greater than or equal to 1 mg/l.
       - A concentration of any other petroleum constituent that is greater than the detection limit for that constituent.

1b. analytical results from samples collected during the closure of a hazardous substance UST:
- analytical results for the substance stored in the tank that exceed the detection limit for that substance.

2. analytical results from samples collected at any time other than UST closure:
- The concentration of any petroleum constituent or hazardous substance that is greater than the detection limit for that substance.

NOTE: The concentrations listed above are reporting thresholds; they are <u>not</u> remedial endpoints.

2. Product dispensing equipment is operating in an unusual manner.
   A. loss of product.
   B. water in the tank.
   C. overfill alarm.
   D. product dispensing equipment does not dispense product or dispenses product at a greatly reduced rate.
   E. alarm issued by automatic line leak detectors.

3. Monitoring results from a release detection method indicate a release may have occurred.
   A. free product in ground water monitoring wells.
   B. petroleum vapors in vapor monitoring wells.
   C. tank tightness test results indicating a release.
   D. inventory control discrepancies that indicate a release may have occurred (a gain or loss of 130 gallons of product + 1% of throughput).
   E. alarms from automatic tank gauges, interstitial monitors, sumps, etc.
   F. statistical inventory reconciliation results that potentially indicate a release or fail to meet regulatory requirements for leak detection over a specified period of time (see Section 2.1.1.1).
   G. results from any other type of approved monthly monitoring method that indicates a release may have occurred.

Upon receiving a report that one or more of these conditions exists at a site, the regional Case Manager shall determine if: (1) the tank owner or operator should be directed to proceed with release investigation and confirmation to determine if a release has occurred; or (2) the tank owner or operator should be directed to begin release response and corrective action following a confirmed release from an UST system.

2.1.1 Suspected Releases - USTs

Suspected releases must be reported to the DEQ within 24 hours from the time that the release from a regulated UST or partially deferred UST (emergency generator UST) is first suspected. When a release report is received, Regional Office staff must decide whether the evidence confirms a release from an UST system or indicates that a release may have occurred. If the regional Case Manager believes that evidence indicates a suspected release, he/she shall direct the tank owner or operator regarding the measures which must be taken to determine whether a release has actually occurred. Depending upon the nature of the release, the Regional Office staff may require a system tightness test, a Site Check, or both. Regional staff will pre-approve tank tightness tests and/or Site Checks as appropriate for the site. Site Checks are required when environmental contamination is the reason a release is suspected. A fact sheet for suspected releases that staff may provide to interested persons is included in Appendix C.

In instances where a system tightness test is employed to confirm a release, §160 of the UST Technical Regulation requires that the owner or operator select a tightness test method that can detect a leak rate of at least 0.1 gallons/hour. Section 130 (A) (3) of the UST Technical Regulation further requires that the tightness test method have a probability of detection of at least 95% and a probability of false alarm of no more than 5%.

Activities performed to investigate a suspected release may be eligible for reimbursement provided that the DEQ pre-approved these activities. Please see Section 2.1.5 of this document for additional information on the reimbursement of costs associated with investigating a suspected release.

NOTE: The requirements for and an example of a suspected release letter that staff may use are included in Appendix E.

2.1.1.1 Releases Suspected by Statistical Inventory Reconciliation

Statistical inventory reconciliation (SIR) is a method that tank owners and operators may use to meet the release detection requirements of the UST Technical Regulation. SIR is considered an "other method" of release detection, not a type of inventory control (§ 160.H). Failed SIR results like all other non-inventory control release detection methods that indicate a release must be reported to DEQ within 24 hours unless a monitoring device is found to be defective, repaired, replaced, or re-calibrated immediately, and additional monitoring does not confirm the initial result (§ 190.3.a). After a suspected release is reported, the tank owner/operator must: (1) begin release investigation and confirmation to determine if a release has occurred; and (2) submit a release investigation report to DEQ.

NOTE: Vendors performing SIR sometimes attribute failed or inconclusive SIR results to improper stick readings. Improper stick readings are considered to be a "monitoring device found to be defective" and SIR results that failed or were inconclusive because of persons using incorrect procedures to collect data do not have to be reported the first month that the test failed or was inconclusive for this reason. Tank owners/operators are expected to use appropriate data collection techniques and take corrective measures to prevent the further use of erroneous data collection procedures. If SIR results for the following month are inconclusive or failed, the tank owner/operator must report a suspected release to DEQ.

An “inconclusive” SIR result means that the release detection performed for the tank during that month failed to meet regulatory requirements. Upon receiving the first "inconclusive" SIR result, the tank owner/operator must: (1) immediately consult their SIR vendor to assess the possible causes for the inconclusive test result; and (2) make the changes recommended by the SIR vendor (i.e. change sticking practices, calibrate meters, etc.) to reduce the possibility of having future inconclusive SIR results. The DEQ Storage Tank Program will, as a matter of practice, require tank owners/operators to perform a release investigation to determine if the tank is leaking when:

1. SIR results for two consecutive months are inconclusive; or

2. There are three inconclusive SIR results during any six month period.

2.1.1.2 Releases Suspected by Interstitial Monitoring

Interstitial monitors are used to check for leaks in the area between a tank and its secondary containment system. Certain monitors may indicate product leaking from the tank by the physical presence of that product in the liquid or gaseous forms. Other monitors may check for a change in condition that indicates a hole in the tank such as a loss of vacuum or a change in the level of a monitoring liquid that is placed in the interstitial space between a double-walled tank.

Interstitial monitors that indicate a breach or potential breach in the tank that contains product do not necessarily indicate that the tank has released product to the environment. If an interstitial monitor indicates a breach or potential breach in the tank that contains product, the tank owner/operator must determine: (1) the cause of the breach in the tank system; and (2) if there was a release of product to the environment. If the breach in the product containing portion of the system is found within 24 hours after the interstitial monitor indicated the problem, the breach is repaired, and the breach could not have caused a release to the environment, a suspected release does not have to be reported to DEQ. Problems that cannot be found or repaired within 24 hours, as well as problems that may have caused a release to the environment, must be reported to DEQ within 24 hours after the initial discovery of the problem.

NOTES:
1. USTs containing CERCLA Listed substances (i.e. hazardous substance USTs) must have secondary containment to be in compliance with the Technical Regulation. Any breach in either the inner or outer wall makes the tank non-compliant and must be corrected regardless of whether a release to the environment occurred.
2. Petroleum USTs using secondary containment as the release detection method are non-compliant if a breach occurs in either the inner or outer walls of the tank. Breaches of this nature must be corrected regardless of whether a release to the environment occurred.

2.1.1.3 Releases Suspected Due to Automatic Tank Gauging Results

Results from an automatic tank gauging (ATG) system that indicate a release must be reported to DEQ within 24 hours after the tank owner/operator receives the results, unless: (1) the owner/operator finds that the ATG is operating improperly and repairs the ATG system within that 24-hour period; or (2) the leak rate indicates that fuel was being pumped during the test (e.g. a 2 to 15 gph leak rate), and the test for the next week passes. Upon receiving a report of a release suspected due to ATG results, the Case Manager will require the tank owner/operator to perform release investigation to determine if a release to the environment has occurred. Tank owners/operators finding improperly operating ATGs and making repairs after the ATG indicated a tank system failure should document and retain records regarding the nature of the ATG failure and the corrective measures taken.

NOTE: Any passing ATG test within the month keeps site in compliance.

2.1.1.4 Releases Suspected Due to Failed Tightness Tests

Tank owners/operators may use system tightness tests to meet the release detection requirement. A system tightness test indicating a release must be reported to DEQ within 24 hours after failure unless the tightness test was incorrectly performed. If the failed tightness test is the only reason for suspecting a release, DEQ staff will usually require an additional tightness test to be performed. If the second tightness test also fails, DEQ will consider two consecutive failed tests to confirm a release.

2.1.1.5 Releases Suspected by One of a Redundant Set of Release Detection Methods

DEQ staff may encounter situations where a tank owner/operator uses redundant release detection methods and one of the methods, not both, is inconclusive. The DEQ may accept information from the redundant form of release detection instead of a tank tightness test if the additional release detection method used at the site meets the accuracy requirements of tank tightness testing as specified in the Technical Regulation.

Example: 2-1. Inconclusive SIR Results when a Redundant Release Detection Method is Used
An UST owner uses statistical inventory reconciliation as his primary form of leak detection. This UST owner, however, also has an automatic tank gauging system (ATG) in place and uses this ATG as a backup. The ATG system has an accuracy of .1 gallons per hour and a probability of detection of .95 and a probability of false alarm of .05. SIR results for two consecutive months are inconclusive. ATG results for those same months did not indicate a release and/or the ATG was used as the tank test method to verify after two inconclusive SIR results that no release had occurred. The DEQ Regional Case Manager may accept the ATG results in lieu of requiring a tightness test, because the ATG has the same accuracy as the tightness test as specified by the UST Technical Regulation.

2.1.1.6 Releases Suspected by Vapor Monitoring

UST owners/operators may use vapor monitoring as their method for release detection. Section 160.E of the UST Technical Regulation requires persons using vapor monitoring as their release detection method to assess the tank area to ensure that vapor monitoring will be effective for the site. Vapor monitors must be designed to detect any significant increase in concentration above the background of regulated substance stored in the tank.

To comply with the requirements of this method, persons using this method must determine "background" vapor conditions for their site. Tank owners/operators then should compare monthly monitoring results with background conditions to determine if vapor concentrations have significantly increased at the site.

2.1.2 Confirmed Releases - USTs

A "release" is defined in 9 VAC 25-580-10 as any spilling, leaking, emitting, discharging, escaping, leaching, or disposing from an UST into ground water, surface water or subsurface soils. Owners and operators of USTs are required to report confirmed releases to DEQ within 24 hours from the time that the release was discovered. Regional staff, upon receiving a release report, will direct the responsible person regarding the actions needed at the site. A fact sheet for confirmed releases that staff may provide to interested persons is included in Appendix C.

The following conditions will usually be considered by regional staff as evidence that a release occurred from an UST:

1. environmental contamination is observed in close proximity to the UST; and

2 the UST system fails a leak confirmation test after failing a tightness test or other type of leak detection method

Once a release has been confirmed, the tank owner or operator must:

1. take immediate action to prevent further release of material from the UST; and

2. identify and mitigate all fire, explosion, and vapor hazards in accordance with 9 VAC 25-580-240.

Federal regulation requires the person in charge of the facility from which a discharge of oil occurs to immediately report the following types of incidents to the National Response Center:

1. discharges that cause a film, sheen or discoloration to the water surface or adjoining shoreline; or

2. discharges that violate applicable water quality standards (40 CFR 110.10).

If this is not practicable, reports may be made to the Coast Guard or EPA pre-designated on-scene coordinator for the geographic area where the discharge occurs as long as the person in charge of the facility contacts the National Response Center (800-424-8802) as soon as possible.

CERCLA requires the owner or operator of USTs containing hazardous substances to report spills or overfills of hazardous substances that result in releases to the environment that equal or exceed the CERCLA reportable quantity for the substance released (40 CFR 302). The tank owner or operator is required to report these releases to the National Response Center, the Virginia Department of Emergency Services (804-674-2400) and, usually, the county or city emergency services coordinator.
The Virginia Building Code requires the owner or operator of an UST containing hazardous materials to report any release of that material in quantities reportable under state, federal or local regulations to the local code official (usually the building inspector or fire marshal). The definition of hazardous materials in the Virginia Building Code includes materials which are flammable or combustible liquids and, therefore, includes most petroleum products.

NOTE: Letter requirements and an example letter that staff may use following a confirmed release are included in Appendix E.

2.1.3 Spills and Overfills - USTs

Owners and operators of petroleum USTs must report spills and overfills of petroleum to the environment if they:

1. exceed 25 gallons; or

2. cause a sheen on surface water.

UST owners or operators do not need to report spills or overfills of petroleum to the environment if:

1. the spill is 25 gallons or less;

2. the spill is cleaned up within 24 hours; and

3. the release does not cause a sheen on surface waters.

Owners and operators of hazardous substance USTs must report spills and overfills that result in a release to the environment that equals or exceeds the reportable quantity for that substance under CERCLA (40 CFR 302) to the National Response Center and to DEQ within 24 hours of discovery.

Owners and operators of hazardous substance USTs do not need to report spills and overfills to DEQ provided that the spill or overfill is less than the reportable quantity for the substance and the spill or overfill is cleaned up within 24 hours.

NOTE: It is recommended that UST owners and operators maintain records of petroleum spills and overfills that were less than 25 gallons, cleaned up within 24 hours, and did not reach state waters.

2.1.4 Releases from Previously Closed UST systems

Prior to December 22, 1988, there were no EPA or DEQ requirements for closing USTs nor were there any requirements for assessing the site at the time of closure. If releases from a previously closed UST (i.e. an UST that was permanently closed prior to December 22, 1988) are believed to pose an actual or potential threat to human health or the environment, Section 340 of the UST Technical Regulation provides DEQ with the ability to require the owner and/or operator of that previously closed UST to assess the site and close the UST in accordance with current regulatory requirements. Section 340 of the UST Technical Regulation also provides DEQ with the ability to require the owner or operator of an UST system that was removed prior to December 22, 1988, to assess the site if there is evidence of a release that may pose a threat to human health or the environment. If contaminated soil, ground water, or free product is discovered during the site assessment phase of tank closure, the owner/operator is required to begin corrective action in accordance with Part VI of 9 VAC 25-580-10 et seq. and this includes reporting the release to DEQ within 24 hours of confirming the release.

One of the issues that regional staff must frequently address when dealing with previously closed UST systems is determining who is responsible for the clean up. Under Article 9, the owner of the UST is:

1. In the case of an UST in use or brought into use on or after November 8, 1984, the person who owns the UST; and

2. In the case of an UST in use before November 8, 1984, but no longer in use after that date, any person who owned the tank immediately before discontinuation of use.

For additional information and guidance on determining the owner and operator of an UST, please see sections 3.1.1.1 and 3.1.1.2 of this manual.

NOTE: The term "owner" does not include any person who, without participating in the management of an UST or being otherwise engaged in petroleum production, refining, and marketing, holds indicia of ownership primarily to protect the holder’s security interest in the tank. For additional information, please see Section 3.1.5.1.

2.1.5 Virginia Petroleum Storage Tank Fund Reimbursement for Activities Associated with Confirming a Release

When a release is suspected from a regulated or partially deferred UST, the owner or operator of that tank must determine if a release has occurred. As long as the tank system from which the release is suspected is eligible for VPSTF, costs for confirming a release may be eligible for reimbursement provided that:

1. tightness testing performed to confirm a release was pre-approved by the Regional Office[2-1] via the Activity Authorization Form; and/or

2. the tank owner or operator requested and received pre-approval (via the Activity Authorization Form) from the Regional Office for specific site check activities.

Tasks which regional staff may commonly see on AAFs for release investigation and confirmation include:

Task	Task Code (198 UCRs)
• Petroleum contaminated soil disposal at a landfill	T013
• Site Reconnaissance/Initial Site Map	T014
• UST system tightness testing for leak confirmation	T015
• Drill rig mob/dmob	T023
• Soil boring with drill rig - 5 foot sampling interval	T024
• Monitoring well installation	T025, T026
• Logging soil borings	T028
• Soil sampling	T030
• Monitoring well sampling	T031, T032

Additional or alternative tasks may be appropriate depending upon site conditions and Regional Office staff have the authority to approve other tasks or activities as needed to complete the release investigation.

[2-1] The VPSTF may be used to reimburse tank owners and operators for costs incurred during the implementation of DEQ approved actions taken under Parts V and VI of the UST Technical Regulation (See the Petroleum Underground Storage Tank Financial Responsibility Regulation; 9 VAC 25-590-210.A.2). Staff should be cognizant of and remind tank owners or operators that costs associated with tightness tests or other release detection methods performed to satisfy the release detection requirements of Part IV of the UST Technical Regulation are not eligible for reimbursement from the VPSTF.

2.2 REPORTING REQUIREMENTS FOR RELEASES FROM EXCLUDED USTS

The UST Technical Regulations promulgated pursuant to Article 9 of State Water Control Law exclude certain types of USTs, that meet the statutory/regulatory definition of UST, from the requirements of the regulation. These excluded USTs are excepted from the requirements of Article 11 by §62.1-44.34:23 (Article 11) which states: "Nothing in this article shall apply to: ... (vi) releases from underground storage tanks as defined in §62.1-44.34:8." Article 9 applies to all excluded USTs (USTs that are excluded from the requirements of the UST Technical Regulation) as long as the UST contains petroleum or another regulated substance. Staff must remember that correspondence requiring corrective action for releases from excluded USTs should only refer to Article 9 and must not contain any references to the UST Technical Regulation.

2.2.1 USTs Containing Hazardous Waste

UST systems containing hazardous wastes listed or identified under Subtitle C of the Solid Waste Disposal Act are excluded from the statutory requirements of Article 9 and the regulatory requirements of 9 VAC 25-580-10 et seq. These tanks are, however, regulated under RCRA. The owner and/or operator of tanks containing hazardous waste are required to report any releases to the environment to the EPA Regional Administrator within 24 hours of discovery and to the National Response Center if the quantity of material released equals or exceeds the reportable quantity for that material. If the release creates an emergency situation, the owner and/or operator must immediately report the release to the designated on-scene coordinator or the National Response Center, State and local emergency officials, and the EPA Regional Administrator. Storage Tank Program staff should direct persons requesting additional information or assistance regarding hazardous waste USTs to the DEQ Hazardous Waste staff.

2.2.2 Wastewater Treatment USTs

Wastewater treatment tank systems may meet the definition of UST under Article 9 and also be subject to the requirements of a VPDES permit, a VPA permit, or a pretreatment permit. VPDES permits are required for point source discharges to surface water. VPA permits are required to manage pollutants when there is no discharge to surface waters. Wastewater treatment tank systems that discharge materials into a sanitary sewer are required to have a pretreatment permit from the Publicly Owned Treatment Works (POTW) that operates the sanitary sewer. A discharge from a wastewater treatment tank that is not in compliance with the permit for that wastewater treatment system must be reported to DEQ within 24 hours of discovery (9 VAC 25-30-90.9.b and 9 VAC 25-32-30.B.2). Corrective actions related to a release from a VPDES or pretreatment facility may, from a regulatory/statutory perspective, be administered either under the VPDES program or under Article 9. Corrective actions related to a release from a VPA facility may be administered under the VPA program or under the UST Technical Regulation (deferred USTs). When an unpermitted discharge has occurred from a permitted wastewater treatment tank system, DEQ Storage Tank Program staff must coordinate with DEQ permit staff to determine the appropriate regulatory/statutory framework under which to conduct corrective actions.

Emergency generator USTs that are part of the backup power system at permitted treatment facilities are regulated as USTs under the UST Technical Regulation but, are deferred from release detection requirements of the regulation. Emergency generator USTs at wastewater treatment facilities do not perform a treatment function (i.e. treatment does not take place within these tanks). These tanks are not considered integral to the treatment process nor do they directly contribute to treatment of wastewater, therefore, they are regulated as specified in the UST Technical Regulation.

One type of wastewater treatment tank that Storage Tank Program staff must periodically deal with is the oil-water separator UST. Oil-water separators commonly are tank units with compartments for separating the collected oil and water. The water is usually discharged to a POTW or receiving stream under a VPDES permit or pumped and hauled to a treatment facility under a Virginia Pollution Abatement (VPA) permit. Oil-water separator systems are inherently wastewater treatment units and are supposed to be regulated under the Clean Water Act. If oil collected by an oil-water separator is pumped to a separate UST, this separate UST is subject to the requirements of the UST Technical Regulation. Storage Tank Program staff encountering releases from oil-water separator tanks should coordinate activities with the DEQ Permit staff.

2.2.3 All other Excluded USTs

In addition to the USTs discussed in Sections 2.2.1 and 2.2.2 above, USTs that contain regulated substances for operational purposes (e.g. hydraulic lift tanks and electrical equipment tanks), UST systems of 110 gallons or less, UST systems containing a de minimis concentration of regulated substance, and emergency spill or overflow containment USTs are also excluded from the requirements of the UST Technical Regulation. Article 9 of State Water Control Law gives DEQ the authority to require UST owners and operators to undertake corrective actions following a release of a regulated substance from an UST. There are, however, no statutory requirements in Article 9 for reporting releases.

Releases of petroleum from hydraulic lift tanks and petroleum USTs of 110 gallons or less are eligible for reimbursement from VPSTF. Owners and operators of these tanks must report the release to DEQ if they wish to seek reimbursement for corrective action costs. Costs incurred for corrective actions performed more than 24 hours before the release was reported to DEQ and costs for work which was not pre-approved by DEQ will not be considered for reimbursement.

2.3 REPORTING REQUIREMENTS FOR OIL DISCHARGES

Article 11 of State Water Control Law is a statute which prohibits the discharge of oil into state waters, storm drains, or upon state lands. This statute encompasses all oil discharges except:

1. normal discharges from properly functioning vehicles and equipment, marine engines, outboard motors, or hydroelectric facilities;

2. accidental discharges from farm vehicles or noncommercial vehicles;

3. accidental discharges from fuel tanks of commercial vehicles or vessels that have a fuel capacity of 150 gallons or less (e.g. saddle tanks on trucks);

4. discharges authorized by a valid permit issued by the board (DEQ) pursuant to §62.1-44.15 (a discharge permitted under the VPDES or VPA programs) or by the U.S. EPA;

5. USTs regulated under a state program;

6. releases from USTs as defined in §62.1-44.34:8 (Article 9), regardless of when the release occurred;

7. discharges of hydrostatic test media from a pipeline undergoing a hydrostatic test in accordance with Federal pipeline safety regulations; and

8. discharges authorized by the federal on-scene coordinator and the Executive Director or his designee in connection with activities related to the recovery of spilled oil where such activities are undertaken to minimize overall environmental damage.

According to §62.1-44.34:19 of State Water Control Law, any person discharging or causing or permitting the discharge of oil into or upon state waters, lands, or storm drain systems[2-2] must immediately, upon learning of the discharge, notify the board (DEQ), the director or coordinator of emergency services appointed pursuant to §44-146.19 (Emergency Services and Disaster Law) for the political subdivision within which the discharge occurs, any other political subdivision reasonably expected to be affected by the discharge, and appropriate federal authorities. Notification is deemed to have been given for any discharge of oil from a facility to state lands in amounts of less than 25 gallons as long as the record keeping requirements of subsection C of §62.1-44.34:19.2 have been met and the oil has been cleaned up.

Under Article 11, the operator of the facility, tank, or vessel is presumed to be the person permitting the discharge of oil as this person has the responsibility for the day to day operation of that facility, tank, or vessel. The person causing the discharge may be the operator of the facility, tank, or vessel or may be a third party[2-3]. If a person other than the operator caused the discharge, both the person causing the discharge and the operator are responsible for reporting the discharge. The operator is still responsible for reporting the discharge (even if he/she did not cause the discharge) because it is believed that this person has the ability to control the access of other persons to the tank, facility, or vessel.

As with releases from USTs, any discharge of oil causing a film, sheen, or discoloration of surface water must be reported to the National Response Center. Releases of hazardous materials (including many types of oil) must also be reported to the local code official in charge of administering the Uniform Statewide Building Code.

[2-2] Oil discharges that "may reasonably be expected to enter state waters, lands, or storm drain systems" also must be reported by the responsible person to DEQ immediately upon learning of the discharge.

[2-3] For the purposes of this document, third party is defined as any person who is neither the owner nor the operator of an UST or AST.

In the absence of other conditions that indicate a discharge (e.g. vapors, free product, stained soil), the following analytical results must be reported to DEQ as soon as the analytical results are received:

1. Analytical results from samples collected during the closure of exempt USTs and/or ASTs:
   A. TPH concentration in soil that is greater than or equal to 100 mg/kg
   B. TPH concentration in water that is greater than or equal to 1 mg/l
   C. A concentration of any other petroleum constituent (e.g. benzene) that is greater than the detection limit for that constituent

2. Analytical results from samples collected at any time other than tank closure that exceed the detection limit for any petroleum constituent.

NOTE: <u>DEQ does not require</u> the collection and analysis of samples when the following types of tanks are closed:
1. exempt USTs;
2. ASTs containing less than 660 gallons of oil.

2.3.1 Significant Variation in Inventory Control – ASTs

Operators of ASTs at facilities having an aggregate aboveground storage capacity of 25,000 gallons or greater of oil are required to perform pollution prevention measures on ASTs at those facilities including the performance of inventory control. Each operator must use inventory control procedures that are capable of detecting a significant variation of inventory. A significant variation is considered a variation in excess of one percent of the storage capacity of each individual AST. For a refinery, a significant variation of inventory is a loss in excess of one percent by weight of the difference between the refinery's input and output.

Reconciliations of inventory measurements must be performed monthly. If a significant variation is found for two consecutive reconciliation periods, the operator must conduct an investigation to determine the cause of the variation. This investigation must be completed within five working days after the end of the second reconciliation period. If the investigation does not reveal the cause of the significant variation of inventory, the operator must notify DEQ and the local director or coordinator of Emergency Services. The operator must then conduct additional testing to determine the cause of the variation.

NOTE: The following ASTs are not subject to inventory control and testing for significant variations:

1. ASTs totally off ground with all associated piping off ground.
2. ASTs with a capacity of 5000 gallons or less located within a building or structure designed to fully contain a discharge of oil;
3. ASTs containing #5 or #6 fuel oil for consumption on the premises where stored.
4. ASTs with release prevention barriers (RPBs) with all associated piping off ground, with an established corrosion rate and cathodic protection that protects the entire area of the tank bottom;
5. ASTs with RPBs with all associated piping off ground and with secondary containment that is 72 hours impermeable;

6. ASTs that meet the construction and installation standards of STI - F911-93, F921-93, or F941-94 or equivalent standards approved by the board;
7. For refineries with a continuous leak detection monitoring system and cathodic protection of the AST and piping, a significant variation of inventory shall be considered a loss in excess of 3% by weight of the difference between the refinery's input and output;
8. Vaulted tanks meeting UL 2245 or an equivalent standard approved by the board;
9. An AST used in the production/manufacturing process with full containment that is 72 hours impervious; and
10. An AST of 12,000 gallons or less with full containment that is 72 hours impervious, inside a building and used for the storage of heating oil consumed on the premises.

2.3.2 Pressure Testing Failures - AST Piping

ASTs at a facility that has an aggregate above ground capacity of 25,000 gallons or greater of oil must have the associated piping pressure tested at intervals not to exceed five years. Operators of these facilities are required to have an Oil Discharge Contingency Plan (ODCP) for the facility. The ODCP must describe equipment testing and the actions that will be taken by the facility operator should AST piping fail a pressure test. Facility operators must respond to pressure testing failures as specified in their approved ODCP.

If piping fails a test, the DEQ will consider this to be a threat of a discharge of oil to Virginia Waters. The AST operator must immediately report the failed test to DEQ. Within 7 days after reporting the failure or another period of time as specified by the DEQ or within the approved ODCP, the AST operator must: (1) determine the cause of the failed test; (2) determine if a discharge of oil to the environment occurred; and (3) report this information to the DEQ Regional Office.

2.3.3 Leak Detection Failures - ASTs

ASTs at facilities having an above ground capacity of 25,000 gallons or greater of oil are required to have leak detection systems that are capable of detecting a leak from the AST and associated transfer piping in the shortest feasible time. These leak detection systems must be installed for all ASTs containing greater than 660 gallons of oil unless the tank is otherwise excluded from this requirement by the AST Regulation. Leak detection methods that may be used for ASTs and transfer piping include ground water monitoring, vapor monitoring, interstitial monitoring with release prevention barriers, visual monitoring, and statistical inventory reconciliation.

Operators of these facilities are required to have an Oil Discharge Contingency Plan (ODCP) for the facility. AST operators must immediately report failed leak detection results to the DEQ Regional Office.

2.3.3.1 Inconclusive SIR Results - ASTs

Statistical inventory reconciliation (SIR) is a method that tank owners and operators may use to meet the leak detection requirements of the AST Regulation. If SIR results for one month indicate that the tank may be leaking (i.e. a failed SIR result), the AST operator must: (1) report a failed leak detection test to DEQ; (2) determine if a discharge of oil has occurred; and (3) submit a release investigation report to DEQ.

An “inconclusive” SIR result means that the leak detection performed for the tank during that month failed to meet regulatory requirements. Upon receiving the first "inconclusive" SIR result, the AST operator must immediately consult their SIR vendor to assess the possible causes for the inconclusive test result. The DEQ Storage Tank Program will, as a matter of practice, require AST operators to perform a release investigation to determine if the tank is leaking when:

1. SIR results for two consecutive months are inconclusive; or

2. There are three inconclusive SIR results during any six month period.

2.3.3.2 Interstitial Monitors - ASTs

Interstitial monitors are used to check the area between the bottom of an AST and its release prevention barrier or the space between transfer piping and the release prevention barrier. Interstitial monitoring systems may detect leaks based on electrical conductivity, pressure or fluid sensing, hydrostatic monitoring, visual monitoring, and vapor monitoring.

Interstitial monitors that indicate a breach or potential breach in the product containing tank do not necessarily indicate that the tank has released product to the environment. If an interstitial monitor indicates a breach or potential breach in the AST or transfer piping, the AST operator must determine: (1) the cause of the breach in the AST or transfer piping; and (2) if there was a discharge of oil to the environment. If the breach in the AST or transfer piping is found within 24 hours after the interstitial monitor indicated the problem, the breach is repaired, and the breach could not have caused a discharge of oil to the environment, a suspected release does not have to be reported to DEQ. Problems that cannot be found or repaired within 24 hours as well as problems that may have caused a discharge of oil to the environment must be reported to DEQ within 24 hours after the initial discovery of the problem.

2.3.4 Farm Tanks

Farm or residential USTs of 1100 gallons or less capacity used for storing motor fuel for noncommercial purposes are exempt from the requirements of the UST Technical Regulation, but subject to Article 11 if there is a discharge from the tank. A "farm tank" is a tank located on a tract of land devoted to the production of crops or raising animals including fish, and associated residences or improvements (UST Technical Regulation). The term "Farm" includes fish hatcheries, range land, and nurseries with growing operations.

The preamble to the Federal UST regulation further clarifies which tanks qualify as "farm tanks" by stating that farm tanks must be located on the farm property in order to be exempt from the UST regulation. The term "farm" **does not** include laboratories where animals are raised, land used to grow timber, and pesticide aviation operations. The "farm" definition **does not** include retail stores or garden centers where the products of nursery farms are marketed, but not produced.

In some instances, tanks may be located on sites having some agricultural or farming component, however, another land use is dominant at that site. Examples of this are state correctional facilities (state farms) and state university agricultural research facilities. The primary purpose of state correctional facilities is to incarcerate criminals, not produce agricultural products. Likewise, state university agricultural research facilities are primarily institutions of higher education, not farming operations.

When DEQ encounters a dual use where a tank owner uses the fuel tank for farming operations and for another type of commercial activity, the IRS business category of the facility is used to determine if the tank is subject to the requirements of the UST Technical Regulation. True farming operations utilize the IRS's Schedule F (farms) for reporting income. Business entities other than farms use Schedule C (sole proprietorships) or other schedules for reporting income. The IRS schedule used to report the use of the tank will be used by DEQ to determine is the tank is exempt from the requirements of the UST Technical Regulation.

2.4 ISSUANCE OF POLLUTION COMPLAINT NUMBERS

When Regional Office Staff learn of a suspected or confirmed release (or discharge), a pollution complaint number (PC#) for the release/discharge must be issued. Pollution complaint numbers consist of a four-digit fiscal year prefix followed by a four-digit number assigned by the region. The fiscal year for the Commonwealth of Virginia is from July 1 through June 30. The four-digit prefix for releases/discharges discovered on or after July 1 of a calendar year will receive a prefix number for the next fiscal year (e.g. a discharge of oil reported on July 3 2001, will have a PC number of 2002-xxxx).

NOTE: The fiscal year prefix on the PC numbers shown on correspondence, files, etc. may be the last two digits of the fiscal year. Staff entering data into the STORMS database **must** use an eight-digit PC # (four-digit fiscal year followed by the four-digit assigned number).

Each DEQ region is assigned a block of numbers from which to use when issuing PC #s. The four-digit number assigned by regional staff after the two-digit fiscal year prefix must be unique to the individual site and cannot be assigned to any other sites. Generally, these numbers are assigned sequentially in the order that the release/discharge is reported or discovered.

Regional PC numbers

Southwest	1000 to 1999
West Central	2000 to 2999
Northern	3000 to 3999
Piedmont	4000 to 4999
Tidewater	5000 to 5999
Valley	6000 to 6999
South Central	7000 to 7999

2.5 FUND ELIGIBLE PETROLEUM RELEASES

One of the first questions that DEQ Regional Staff are asked when a person reports a release is if the costs for corrective action are eligible for reimbursement. Table 2-2 (at the end of this Chapter) lists the different types of tanks and summarizes fund eligibility for releases/discharges from these tanks. Staff may also provide interested persons with fact sheets that contain additional information on the Virginia Petroleum Storage Tank Fund (VPSTF) and financial responsibility (see Appendix C).

NOTE: Staff must be aware that factors other than tank type and content affect reimbursement eligibility. Additional factors affecting eligibility include negligence on the part of the owner or operator or that person's agent or employee, insurance coverage, and effective dates of VPSTF coverage under Article 10. Due to the fact that some of the variables affecting eligibility may not be known at the time a release is reported, it is recommended that regional staff state that a cleanup appears to be eligible based upon presently known information instead of stating unequivocally that the cleanup is eligible.

2.6 AFTER HOURS RELEASE REPORTING

Releases may be reported directly to DEQ personnel during normal business hours or by fax during the evening or weekend. Reporting releases by fax during non-business hours is acceptable for meeting release reporting requirements under Virginia Law and Regulation provided that: (1) the person reporting the release provides information required on the Release Report Form (Appendix D); and (2) the release does not reach surface waters or otherwise create an immediate health hazard (e.g. vapors in a building or structure). It is recommended that any person reporting a release after hours by fax keep a copy of the fax confirmation.

Although reporting releases by fax is viewed by DEQ as a means by which a responsible person may meet his/her release reporting requirement, this method of release notification is not a substitute for receiving instruction from the Regional Office regarding the course of action to be taken following a release. If a responsible person reports a release via fax to DEQ, that person must call the appropriate DEQ Regional Office during the next business day to follow up on the release report and receive instruction from the regional staff.

NOTE: Submittal of an UST closure report does not satisfy the release reporting requirement.

Releases may also be reported during weekend or evening hours to the Virginia Department of Emergency Services at (804) 674-2400. The responsible person must contact the Department of Emergency Services and local emergency officials in all instances where the release creates a hazardous situation (e.g. fire or explosion hazard). If the responsible person is unsure of whether a release has created an emergency situation, it is recommended that they contact the Department of Emergency Services. The Department of Emergency Services, in accordance with an agreement with DEQ, will immediately notify the DEQ Regional Pollution Response Person in the following situations:

1. releases of petroleum that are greater than 100 gallons and that reach state surface waters;

2. releases of petroleum that are greater than 500 gallons;

3. a release of cargo from a tank vehicle;

4. large scale fish kill within state waters;

5. commercial vessel grounding or collision;

6. release from a pipeline;

7. train derailment with a confirmed release;

8. tire fire; and

10. local, state, or federal emergency responder requests DEQ assistance.

Routine releases reported to the Department of Emergency Services will, subsequently, be reported to DEQ by the Department of Emergency Services.

Releases that reach surface waters and cause a sheen must be reported by the responsible person to the National Response Center at 1-800-424-8802 (24 hour hotline).

2.7 SOURCE IDENTIFICATION FOR AST/UST RELEASES

When a release is reported, the source of the release must be determined. This is necessary to ensure that ongoing releases are stopped, appropriate measures are taken to clean up the release, and information for fund access is obtained.

Upon receiving a confirmed release report, regional staff will require the responsible person to characterize the release and ensure that all risks are addressed. Staff must also make the final determination as to when the source of contamination has been sufficiently investigated to ensure against ongoing releases. Staff may, at their discretion, require tightness tests or any other methods deemed appropriate to determine if a release is continuing.

It is also important to determine the source of contamination. Corrective action costs associated with releases from fund-eligible tanks (see Table 2-2), including associated piping and loading racks, are usually eligible for reimbursement. If no absolute source of contamination is discovered (e.g. hole in tank or product lines), regional staff must consider site information including contamination characteristics at the site and use their professional judgement to determine if contaminants were released from the UST or AST. Staff should also review PREP records and other reports received about the release to ensure that the release was not the result of one of the following types of actions:

1. Willful misconduct (e.g. deliberately releasing product from the tank onto the ground, cleaning concrete with gasoline or other fuels, etc.);

2. Negligence (e.g. pumping significantly more product into a tanker truck than the truck's storage capacity, pumping product into a monitoring well, etc.); or

3. Vandalism

Regional staff must advise Central Office when it is believed that negligence or willful misconduct caused or contributed to the release. Determinations concerning vandalism, negligence, or willful misconduct will be made by the Director of SRR.

Staff should also review information received to determine if ineligible sources (e.g. fuel spills from vehicles) contributed to the contamination at the site.

The Central Office staff are available to advise regional staff on issues concerning whether or not the source is an UST or AST; if the product released is petroleum, oil, or an ineligible regulated substance; eligible versus ineligible sources; occurrence determinations; and all other issues related to the Storage Tank Programs.

2.8 PETROLEUM RELEASES CAUSED BY WILLFUL MISCONDUCT, NEGLIGENCE, OR VANDALISM

Virginia Water Control Law requires UST owners and operators and AST operators to clean up releases from tanks that they own or operate. The Petroleum Underground Storage Tank Financial Responsibility Requirements Regulation prohibits DEQ from paying reimbursement when a release is caused, in whole or in part, by the willful misconduct (deliberately releasing product) or negligence of the tank owner or operator or their employees, agents, or contractors (9 VAC 25-590-210.A.4.b). Examples of negligence determinations made by DEQ include:

1. an AST was knocked over by a person or vehicle;

2. an UST was punctured;

3. a hose from a dispenser was left open allowing the contents of the tank to discharge;

4. product was pumped into a monitoring well instead of the fill pipe;

5. a valve was left open allowing the tank contents to discharge;

6. product was pumped into a pipe that was not connected to the tank; and

7 a fill pipe was cut off at ground level and left uncapped.

Regional staff must advise Central Office when it is believed that willful misconduct, negligence, or vandalism caused or contributed to the release. Determinations concerning negligence will be made by the Director of SRR.

Vandalism is an exception to negligence in that vandalism is an act or omission committed by a third party who is neither the tank owner nor the operator, nor an agent, employee, or contractor of the owner or operator. DEQ may consider releases caused by vandalism for Fund access provided that the owner/operator whose tank has been vandalized: (1) reports the act of vandalism to the police; and (2) provides a copy of the police report to the DEQ regional office. Upon receipt of a police report, the regional Case Manager will forward that report to SRR for a fund access decision.

NOTE: Staff may advise tank owners/operators that in order to qualify for the vandalism exception, the owner/operator must report the incident to the police. The burden of reporting and documenting vandalism rests with the RP.

Fund access for releases caused by vandalism will be made by the Director of SRR. Regional staff requesting a determination of Fund access for a release caused by vandalism must provide SRR with the following:

1. the pollution complaint number for the release;

2. the name of the tank owner/operator who is the responsible person for the release;

3. the type of tank (if any) or other source from which the release occurred;

4. the address of the site where the release occurred;

5. the facts concerning how the release occurred; and

6. a police report stating that the release was caused by vandalism

The Director of SRR will review the information provided by the regional office and prepare a memo documenting the Fund access decision for the case. This Fund access determination memo will then be sent to the regional office and the claim processing staff. If DEQ determines that a release caused by vandalism has Fund access, the responsible person will be eligible to request reimbursement for pre-approved, eligible and reasonable cleanup costs in excess of the financial responsibility requirement up to one million dollars for that occurrence.

2.9 PETROLEUM CONTAMINATION FROM UNKNOWN SOURCES

During the course of performing site assessments, site owners often discover petroleum contamination. Analytical results indicating concentrations of petroleum constituents that are greater than the detection limits must be reported to DEQ. Petroleum contamination from any source other than a regulated, deferred, or excluded UST must be administered in accordance with Article 11. Petroleum contamination from an unknown source will, therefore, be managed under Article 11.

The Fund provides reimbursement for corrective action costs resulting from petroleum releases from eligible tank systems. Costs incurred for cleaning up petroleum from unknown sources are not eligible for reimbursement.

2.10 DISCHARGES OF PETROLEUM OR REGULATED SUBSTANCES FROM MUNICIPAL STORM SEWERS

Releases are often brought to the attention of DEQ when petroleum or other regulated substances are discharged from storm sewer systems. The VPDES Permit Regulation (9 VAC 25-31-10 et seq.) requires certain municipalities to have a VPDES Permit for their stormwater discharges. Petroleum or other regulated substances discharging from a storm sewer system may violate the permit limits for that system. If petroleum or other regulated substances are being discharged from a storm sewer, Storage Tank Program staff should inform the regional Permit Staff of this discharge. The regional staff should then contact the municipality and work with that entity to find the source that is discharging these constituents.

2.11 CONTAMINATION FROM FORMER MANUFACTURED GAS PLANTS

Former manufactured gas plants may be found in many of the cities and towns throughout the Commonwealth. During the process of manufacturing gas, tars, oils, and oily water were generated. These materials often contaminated the land and water at and near the gas manufacturing facility and are later brought to the attention of DEQ staff. Contamination from these sites poses special challenges for Storage Tank Program due to the mixture of contaminants that may be found as well as the regulatory framework within which cleanups may be conducted.

Historically, investigations and cleanups at these facilities have been overseen by the DEQ Superfund and Voluntary Remediation Programs. This remains the preferred course of action as these programs are best able to effect a cleanup of all contaminants at the site. If the DEQ Waste Division determines that the cleanup at a particular former manufactured gas plant cannot be managed under the Hazardous Waste or Superfund Programs and there is no entity willing to undertake the cleanup under the Voluntary Remediation Program, the DEQ Storage Tank Program may oversee cleanup of the oils and tars at these sites under Article 11 of Virginia Water Control Law. It is also possible that some or all of the cleanup of tars and oils may be administered under Article 9 of Virginia Water Control Law and the UST Technical Regulation, but the uncertainties and complex histories of these sites make this unlikely. In order to invoke Article 9 and the UST Technical Regulation, the DEQ must possess or be presented with detailed historical and technical information which documents that the release of contaminants at the site came from a regulated UST and not from any other source. Appendix Y contains a DEQ Storage Tank Program White Paper that provides additional information about the Storage Tank Program's position regarding the applicability of Articles 9, 10, and 11 of Virginia Water Control Law to contaminants from former manufactured gas plants.

2.12 RELEASES OF HAZARDOUS SUBSTANCES FROM REGULATED USTS

DEQ Storage Tank Program staff periodically receive release reports for substances other than motor fuels. USTs containing CERCLA defined hazardous substances are subject to the requirements of the UST Technical Regulation provided that the tank is not otherwise excluded from the regulation or exempt from the definition of UST.

NOTE: Some of the more common types of hazardous substance tanks that are not subject to the requirements of the UST Technical Regulation include: (1)USTs containing hazardous wastes (excluded USTs); and (2) flow through process tanks (exempt USTs).

Upon receiving a release report for a material other than a petroleum motor fuel, staff should check the SARA Title III List of Lists (Appendix A) to determine if the material that was released is a CERCLA defined hazardous substance. Substances, chemicals, products, and materials listed in the SARA Title III List of Lists are CERCLA defined hazardous substances. When a release of a hazardous substance occurs, Storage Tank Program staff should contact the Regional Hazardous Waste Inspector to determine if the

facility from which the release occurred has a hazardous waste permit. Releases of hazardous substances at facilities having hazardous waste permits are potentially subject to RCRA Subtitle C corrective actions. If the facility does not have a hazardous waste permit and/or the Waste Division has no interest in the site, the Storage Tank Program may oversee corrective actions under the UST Technical Regulation

NOTE: Releases of CERCLA defined hazardous substances are not eligible for reimbursement from VPSTF.

2.13 APPLICABILITY OF ARTICLE 11 TO DISCHARGES OF HAZARDOUS SUBSTANCES

Facilities utilizing or otherwise managing hazardous substances (substances defined under § 101(14) of CERCLA) may have discharges of those substances into the environment. The definition of oil listed in Article 11 includes "all liquid hydrocarbons regardless of specific gravity." This clause in the definition has caused confusion regarding the applicability of Article 11 to the discharge of any liquid containing hydrogen and carbon from any unit other than a regulated UST.

The Virginia Water Control Board (one of the agencies placed in DEQ) posed this issue to the Attorney General's Office. The Assistant Attorney General wrote an opinion that the term "liquid hydrocarbons" covers a large number of chemicals that would not be considered "oils" as that term is commonly understood. The Assistant Attorney General also stated a belief that the General Assembly probably did not intend to accomplish wholesale regulation of toxic substance spills by this law (Article 8, which was replaced by Article 11).

Most other Federal and State environmental laws including the Clean Water Act, CERCLA, and RCRA (see Subtitle I) all make distinctions between oil (or petroleum) and hazardous substances. The DEQ Storage Tank Program realizes that the term "oil" in Article 11 may be interpreted as any liquid containing hydrogen and carbon. This broad interpretation is inconsistent with other environmental laws. Furthermore, it is appropriate to make a distinction between those materials or substances that are oils and those that are listed hazardous substances. The DEQ Storage Tank Program will consider those materials, chemicals, and products defined in § 101(14) of CERCLA to be hazardous substances and not oil. Article 11, therefore, will not be applied to discharges of hazardous substances. For additional background information on this subject, please see Appendix AB.

NOTE: CERCLA defined hazardous substances are listed in the SARA Title III List of Lists.

2.14 USED OIL

Used oils are regulated substances under the UST Technical Regulation. They are also oils under Article 11. The definition of used oil in the September 10, 1992, Federal Register is any oil that is refined from crude oil (or synthetic oil), that has been used, and as a result of such use is contaminated by physical or chemical impurities. These chemical or physical impurities may make used oil a hazardous waste and subject to the requirements of the hazardous waste regulations.

The DEQ Storage Tank Program typically addresses releases or discharges of used oil into the environment under the UST Technical Regulation or Article 11 depending upon the source. The Storage Tank Program places the responsibility for determining if the used oil is a hazardous waste on the owner/operator of the storage tank and/or the spiller (Article 11). When a release of used oil is reported to the DEQ Storage Tank Program, the Storage Tank Program will oversee the cleanup of that material under the UST Technical Regulation or Article 11 unless the tank owner states or otherwise provides information indicating that the oil is a hazardous waste.

2.14.1 Used Oil as a Hazardous Waste

Persons managing used oil should know if that material is a hazardous waste. Federal regulations presume that used oil will be recycled. Under this "recycling presumption," used oil is generally exempt from the hazardous waste regulations. Despite the exemptions provided by the recycling presumption, persons generating or managing used oil should be aware that used oil may still be regulated as a hazardous waste under the following conditions:

1. Used oil that contains greater than 1000 ppm of total halogens is *presumed* to have been mixed with halogenated hazardous wastes (e.g. chlorinated solvents) and is subject to the applicable hazardous waste regulations. However, a person may rebut this presumption by demonstrating through analyses or documentation that the used oil has not been mixed with halogenated hazardous waste. Persons may, for instance, show that the used oil does not contain detectable concentrations of listed halogenated hazardous wastes.

   Certain types of oils contain halogenated materials that may cause the total halogen concentration (TOX) in the used oil to exceed 1000 ppm. Metalworking oils often contain chlorinated paraffins and refrigeration compressor oils may contain chlorinated fluorocarbons (CFCs). Persons generating used oils having TOX concentrations in excess of 1000 ppm are not required to test the oil for listed hazardous wastes if they can demonstrate that the used oil was a metalworking oil or refrigeration compressor oil.

2. Used oil mixed with a listed hazardous waste is a hazardous waste and must be managed accordingly.

3. Mixtures of used oil and characteristic hazardous waste may be a hazardous waste depending upon the characteristics of the combined mixture.
   A. A mixture of used oil and an ignitable hazardous waste (the waste is hazardous only because of ignitability) is a hazardous waste only if the mixture exhibits the characteristic of ignitability.
   B. A mixture of used oil and a waste that exhibits one or more hazardous characteristics other than ignitability is hazardous if the mixture exhibits **any** hazardous characteristic including ignitability.

Please see Figure 2-1 for a flowchart that may be used to determine if used oil is a hazardous waste.

2.14.2 Releases of Used Oil from Regulated USTs

Used oil is a regulated substance under the UST Technical Regulation and USTs containing this material are subject to the requirements of the UST Technical Regulation provided that the tank is not otherwise excluded or exempt from the requirements of the regulation. The most likely ways for an UST containing used oil to be excluded from the requirements of the UST Technical Regulation are for that tank to have a capacity of 110 gallons or less or for that tank to contain a hazardous waste.

Upon receiving a report of a release of used oil from a regulated UST, the DEQ Storage Tank Program will proceed with the cleanup under the UST Technical Regulation unless the RP states or otherwise provides evidence that the used oil is a hazardous waste. Staff receiving a report of a hazardous waste release should refer the case to the DEQ Waste Division.

2.14.3 Discharges of Used Oil from ASTs

Used oil discharged into the environment from ASTs or anything other than a regulated UST must be reported to DEQ and cleaned up in accordance with the requirements of Article 11. Upon receiving a report of a discharge of used oil from an AST or storage unit other than a regulated UST, the DEQ Storage Tank Program will proceed with the cleanup under Article 11 unless the RP states or otherwise provides evidence that the used oil is a hazardous waste. Staff receiving a report of a hazardous waste release should refer the case to the DEQ Waste Division.

Figure 2-1.
Flowchart for determining if used oil is a hazardous waste

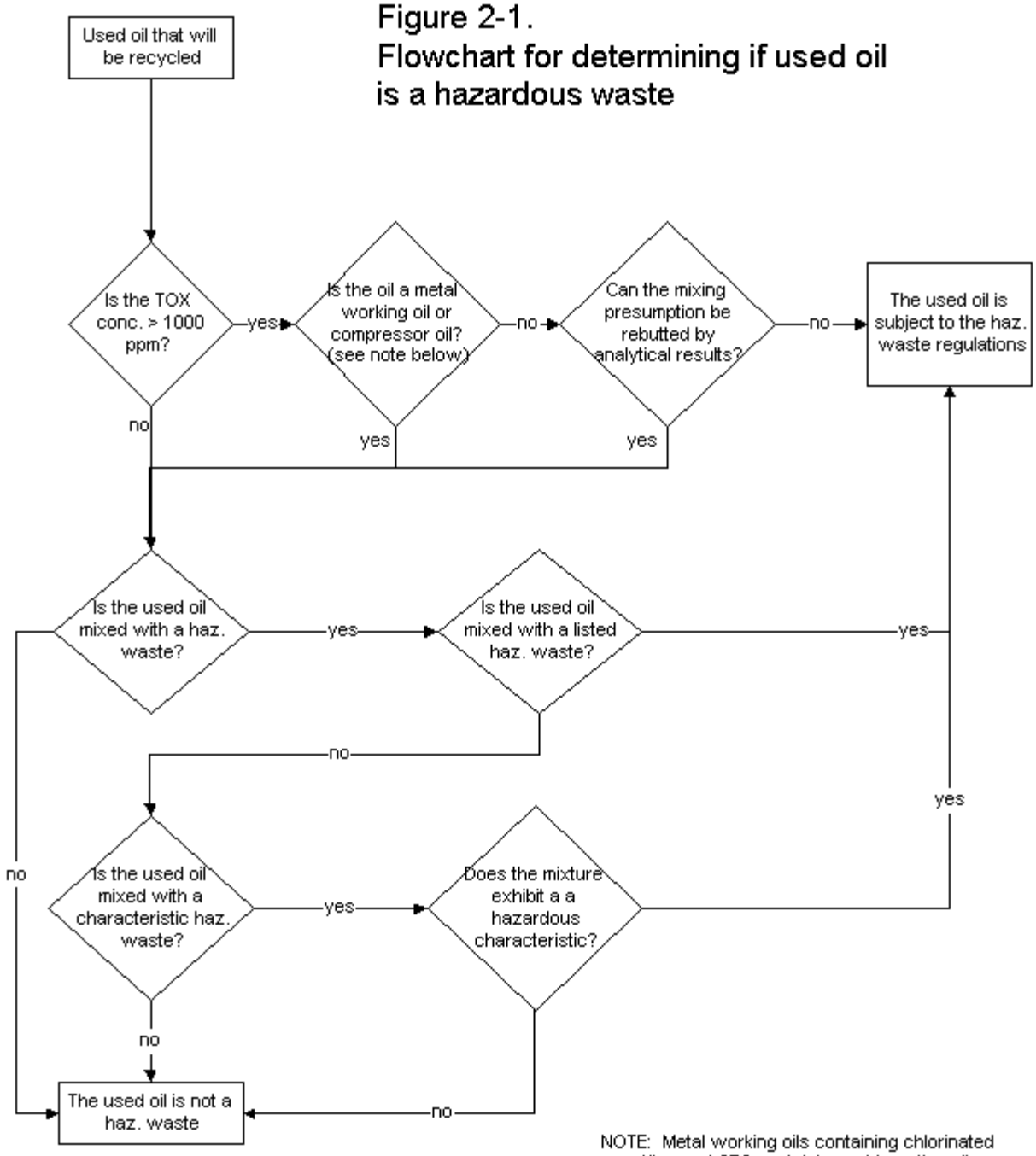


Table 2-1. Release Reporting Requirements

Tank Type	Required Reporting by Release Type		Applicable Statute or Regulation	Time Period for Reporting
	Suspected	Confirmed		
Regulated USTs	X	X	Article 9 VAC 25-580-10 et seq.	within 24 hours of discovering the release[1]
Deferred USTs:				
Types 1, 4, and 5		X	Article 9 9 VAC 25-580-10 et seq.	within 24 hours of discovering the release[1]
Types 2 and 3			See footnote 2	
Partially deferred USTs	X	X	Article 9 VAC 25-580-10 et seq.	within 24 hours of discovering the release[1]
Exempt USTs		X	Article 11[3]	Immediately upon discovering the release[4]
Excluded USTs:				
Types 3 through 6			Article 9 9 VAC 25-580-10 et seq.	Reporting is not required by statute. However, the release must be reported within 24 hours to be eligible for VPSTF.
Type 1		X	See footnote 5	Immediately or within 24 hours depending upon the hazard
Type 2			See footnote 6	Within 24 hours of discovering the permit violation
ASTs		X	Article 11[3]	Immediately upon discovering the release (discharge)

[1] Petroleum spills of less than 25 gallons do not have to be reported to DEQ if they are cleaned up within 24 hours and do not reach state waters. Spills of hazardous substances that are less than the reportable quantity for the substance and that are cleaned up within 24 hours do not have to be reported to DEQ (9 VAC 25-580-220).

[2] Federal Law may require reporting in addition to what is required under 9 VAC 25-580-10 et seq.

[3] Article 11 of State Water Control Law only applies to oil discharges.

[4] According to Article 11 (§62.1-44.34:19.A), notice of a release (discharge) is deemed to have been given if the discharge of oil is to state lands only, is less than 25 gallons, the operator of the facility maintains records in accordance with subsection C of §62.1-44.34:19.2 and the oil is cleaned up.

[5] A release of a hazardous waste that creates an emergency situation must be reported immediately to the National Response Center and, depending upon the situation, to state and local authorities and the EPA Regional Administrator (See 40 CFR 262.34(d)(5), 40 CFR 264.56(d)(1), 40 CFR 264.56(d)(2), 40 CFR 264.56(j), 40 CFR 265.56(d)(1), 40 CFR 265.56(d)(2), and 40 CFR 265.56(j)). Any release to the environment (unless it is equal to or less than one pound and cleaned up immediately) of a hazardous waste from a tank or secondary containment system must be reported to the EPA Regional Administrator within 24 hours. If the release is equal to or greater than the reportable quantity for that substance, the release must also be reported to the National Response Center (40 CFR 264.196(d)(1) and 40 CFR 264.196(d)(3).

[6] The Surface Water Discharge Regulation requires the permittee to notify DEQ of spills or other unpermitted discharges promptly (within 24 hours) after learning of such a discharge (9 VAC 25-30-90.9.b).

Table 2-2. Fund Eligible Releases

Tank Category	Specific Tank Type	Eligible for Corrective Action Costs	Eligible for 3RD Party Claims
Regulated USTs	USTs containing petroleum. See Virginia Code §62.1 -44.34:11.A.2.e and §62.1-44.34:11.A.2.b	X	X
	USTs containing a regulated substance other than petroleum (i.e. a hazardous substance UST).		
Exempt USTs	Types 1 and 2. See Virginia Code § 62.1-44.34:11.A.2.e	X	
	Types 3 through 8		
	Type 9	X[1]	
Excluded USTs	Types 1 and 2		
	Type 3. See Virginia Code §62.1-44.34:11.A.2.a and '§62.1-44.34:11.A.2.b	X[2]	X[2]
	Type 4. See Virginia Code §62.1-44.34:11.A.2.a and §62.1-44.34:11.A.2.b	X[2]	X[2]
	Type 5		
	Type 6		
Deferred USTs	Types 1 and 2		
	Types 3 through 5. See Virginia Code §62.1-44.34:11.A.2.a and §62.1-44.34:11.A.2.b	X[2]	X[2]
Partially Deferred UST	See Virginia Code §62.1-44.34:11.A.2.a and § 62.1-44.34:11.A.2.b	X	X
ASTs at a Facility	ASTs that contain a product on which the fee imposed by Virginia Code § 62.1-44.34:13 is paid	X	
	ASTs that contain a product on which the fee imposed by Virginia Code § 62.1-44.34:13 is not paid		
Heating Oil AST	ASTs of 5,000 gallons or less used for storing heating oil for consumption on the premises where stored. See Virginia Code § 62.1-44.34:11.2.h	X	

[1] A storage tank situated on or above the surface of a mine shaft, tunnel, etc. is considered an AST and is eligible for corrective action costs if the tank contained a product on which the fee is collected or if it is a heating oil tank.

[2] Costs for corrective actions and third party claims are eligible for reimbursement from the Fund provided that the tank contained petroleum.

3.0 RESPONSIBLE PERSONS

3.1 RESPONSIBLE PERSON DETERMINATIONS

The identity of the person responsible for cleaning up a petroleum release and/or complying with other regulatory and statutory requirements depends on several factors. As a general rule, the responsible person is the owner or operator of an underground storage tank (UST) or the operator of an aboveground storage tank (AST) on the date the release is reported to DEQ. Differences in the statutory provisions defining and governing USTs and ASTs make it necessary for staff to consider each type of tank separately when making responsible person determinations.

DEQ regional staff must determine the responsible person (or which of the responsible persons) who will be required to conduct a cleanup under the State Water Control Law. A checklist to assist staff with determining the person responsible for a release is included in Appendix F.

3.1.1 Regulated, Deferred, Partially Deferred, and Excluded USTs ("USTs")

Releases from regulated, deferred, partially deferred, and excluded USTs that contain petroleum are governed by Article 9 of State Water Control Law. The responsible person for the cleanup of a release from a regulated, deferred, partially deferred, or excluded UST is the owner and/or operator of the UST on the date the release is reported to or discovered by DEQ. UST owners and operators are equally liable for the cleanup under the State Water Control Law. As a procedural matter, DEQ normally requires the UST owner to cleanup a release. However, the UST operator may be required to conduct the cleanup in those instances where (1) the operator's conduct is the sole cause of the petroleum release, (2) the owner has been determined to be unable to pay, or (3) the UST owner is a person or an entity that no longer exists or cannot be found. A fact sheet that staff may provide to interested persons is included in Appendix C.

Regional staff should first use information on the UST Notification Form to determine the UST owner. If there is no registered UST owner or operator, the Regional Case Manager should contact the current land owner to establish UST ownership. For USTs that are not registered with DEQ, common law presumes that the person or entity who owns the land is also the owner of the UST. Normally, unregistered USTs are considered to be fixtures like houses or trees, permanently attached to the land, which transfer with the land by deed as part of the real estate. It is possible, however, for fixtures such as USTs to be personal property of a person other than the land owner. It is not uncommon to have an UST site where the land is owned by one person and the USTs are owned and/or operated by other people.

3.1.1.1 Determining Who is an UST Owner/Responsible Person

Responsible person determinations should be based on the following presumptions:

1. The release from the UST is presumed to have occurred at the time of discovery by DEQ or the date the release is reported to DEQ, whichever is earlier.

2. The UST owner listed on the Notification Form is the person responsible for cleanup and compliance with the UST Technical Regulation. The owner listed on the Notification Form is the responsible person regardless of whether the UST was used by this owner.

3. If DEQ has not received a Notification Form, the current land owner is presumed to be the UST owner.

When a release from an UST is reported to DEQ, the Regional Case Manager will first check the UST database for information provided on the UST Notification Form (Form 7530-1) for that tank.

3.1.1.1.1 RP Determination Procedure when a Notification Form has been Submitted to DEQ

When a Notification Form has been submitted to DEQ, the UST owner listed on the Notification Form is presumed by DEQ to be the UST owner. The UST owner listed on the Notification Form may rebut this presumption by providing acceptable written evidence that:

1. another person owns the UST (proof of ownership must be dated after the date of the Notification Form and prior to the date of the release); or

2. the current UST system is not leaking and the release came from an UST system that was removed by a previous owner.

Acceptable written evidence includes another UST Notification Form (signed by the new UST owner), a deed, a bill of sale, a court order, a lease agreement or a service contract indicating that someone else owned the UST at the time of the release. An affidavit by the owner listed on the Notification Form is not acceptable evidence for establishing ownership of the UST by another person.

If the owner listed on the Notification Form provides sufficient evidence that someone else owned the UST at the time of the release, DEQ will require the person who owned the UST at the time of the release to conduct the cleanup. If the evidence is insufficient, the person listed on the Notification Form as the UST owner will be determined to be the UST owner, and, therefore, the responsible person liable for the cleanup of the release. Notification Forms must be signed by the tank owner or an authorized agent of the tank owner.

3.1.1.1.2 RP Determination Procedure when an UST Notification Form has not been Submitted to DEQ

If DEQ has not received an UST Notification Form for the site, the current land owner is presumed to be the UST owner/responsible person. The current land owner can rebut this presumption by providing a detailed written history of the site to the Regional Office which includes acceptable written evidence that:

1. another person owns the UST (proof of ownership must be dated prior to the date of the release);

2. the UST was removed by a prior owner or operator;

3. the current UST system is not leaking and that the release came from an UST system that was removed by a previous UST owner; or

4. the UST was not used after November 8, 1984, and the UST owner at the time of discontinuation of use was another person.

Acceptable written evidence that another person owns the UST includes a DEQ Notification Form (signed by the UST owner), deed, bill of sale, court order, lease agreement or service contract. In general, an affidavit by the present land owner without additional proof will be deemed to be insufficient to establish ownership by another person. A detailed affidavit may, however, be sufficient to establish when use was discontinued if it is executed by a disinterested government official who had personal knowledge of when the UST was taken out of use.

If the evidence is sufficient, the current land owner will not be determined to be the UST owner/responsible person for the cleanup. If the evidence is insufficient, the current land owner will be determined to be the UST owner, and, therefore, the responsible person liable for the cleanup of the site.

Example 3-1. Responsible Person Determination - UST Notification Form Submitted for the Site

Example: Person A submitted an UST Notification Form to DEQ in January 1989, following the installation of 4 regulated USTs at a site. Person A sold the property to person B in June 1994. Person B operates the USTs but never submits a Notification Form to DEQ. Person B discovers a release at the site on March 4, 1997. Who is presumed by DEQ to be the responsible person?

Answer: The only Notification Form submitted to DEQ indicates that Person A is the UST owner. DEQ will, therefore, presume that person A is the RP. Person A can rebut this by providing a bill of sale, deed, court order, UST Notification Form (signed by the new tank owner), lease agreement, or service contract indicating that another person owned the UST on March 4, 1997.

NOTES 1. In order to transfer liability from person A to person B, a bill of sale or deed must specifically mention the USTs.

2. Person B, by virtue of being an UST operator, is also a responsible person. While the DEQ Storage Tank Program will usually require the UST owner (presumed to be person A in this case) to comply with the regulations first, the operator (person B) is equally liable under State Water Control Law and may be required to take the necessary corrective actions if the owner cannot be found or is unable to proceed with corrective actions at the site.

Example 3-2. Responsible Person Determination - Property Owner Submits an UST Notification Form for Out of Service USTs

Example: Person A bought a property in 1985 containing USTs that were taken out of service prior to November 8, 1984 (these tanks would be regulated USTs under today's standards). Person A submits a Notification Form to DEQ, informing DEQ of the presence of these tanks and Person A is listed on the Notification Form as the owner of these USTs. Contamination is found in the area and is traced back to these closed USTs. Who is the RP?

Answer: Person A is the registered UST owner on the date the release was reported. Person A is the responsible person unless he/she provides a bill of sale dated after the Notification Form date and prior to the release date that specifically states that ownership of the USTs transferred as part of the sale.

NOTE: If a Notification Form had not been submitted to DEQ or if Person A notified DEQ of the presence of these USTs but signed the Notification Form as the "owner's representative", DEQ would presume that the present land owner (Person A) is the RP. The present land owner would then have the opportunity to demonstrate that someone else is the tank owner by providing documentation that the USTs were not in use after November 8, 1984, and the tanks were owned by someone else when their use was discontinued. Person A, in this instance might be able to use county tax or real estate appraisal records to demonstrate when land use at the site changed.

Example 3-3. Responsible Person Determination - DEQ Never Received an UST Notification Form for the Site and Another Person Removes the USTs

Example: Person A owns and operates a regulated UST on his property until 1982. In 1982, person A stops using the UST and sells the property to person B. Person B never uses the UST and in 1994, Person B removes the UST to make the property more appealing to prospective buyers. Contamination is found around the UST during tank removal. Who is the responsible person?

Answer: In a situation where the UST was taken out of use before November 8, 1984, the person who last used the UST before discontinuation of use is the responsible person. Person A, therefore, is the responsible person with the following caveats.

1. Person B, by virtue of being the present property owner, will be presumed by DEQ to be the responsible person until he provides written evidence that the UST was last used prior to November 8, 1984, and that he was not the last person to use the UST. Acceptable forms of evidence include a DEQ UST Notification Form (Form 7530-1) showing tank closure, a report or letter from the local building official or fire marshal indicating that the tank was taken out of service, or a real estate appraisal showing that the property was used for another purpose prior to November 8, 1984. The burden of proof that someone else discontinued use of that tank prior to November 8, 1984, is on the present land owner. DEQ will not accept an affidavit from the present land owner as sufficient evidence that another entity is the responsible person.

2. In cases where a person other than the tank owner removed the tank, the person removing the tank will have an additional requirement of demonstrating that he/she did not cause the release during closure. In this example, Person B will have to provide documentation that he/she did not cause the release during removal of the tank. To meet this requirement, person B may provide a written statement from the building inspector or fire marshal who was present during the tank removal that removal operations did not cause the release.

Example 3-4. Responsible Person Determination - DEQ Never Received a Notification Form for the Site and the USTs have been Removed from the Property

Example: Person A owns a property containing several regulated USTs. In 1986, person A removes the USTs. In 1987, person A sells the property to person B. An environmental audit is performed on the property in 1997 and contamination is found. The audit also indicates that the property formerly contained regulated USTs and that those USTs appear to be the source of the contamination. Who is the responsible person?

Answer: Whenever USTs have been removed, the liability for the cleanup ends with the person who removed the USTs. Person A is the responsible person.

Person B, by virtue of being the present property owner will be presumed by DEQ to be the responsible person until Person B provides written evidence that someone else removed the USTs. Person B will also have to provide written evidence showing: (1) there were USTs on the property; (2) the USTs were removed; (3) the date they were removed; and (4) who was the tank owner at the time of removal. Documents that may be used to provide evidence that USTs were formerly on the property include: (1) DEQ UST Notification forms; (2) letters, reports, or other documents from a local building, fire, or other government official showing tanks were located on the site; (3) real estate appraisal documents indicating the presence of USTs at the property; and (4) a Sanborn Fire Map.

The burden of proof that regulated USTs were formerly present at the site and that someone else removed those USTs is on person B (i.e. the present property owner). If person B is unable to prove that USTs were present at the site, he is not only considered the responsible person, but he is not eligible to request reimbursement from VPSTF for costs incurred to cleanup the release. If person B can demonstrate that someone else removed the USTs and that person is unable to pay for the cleanup, deceased, or unknown, Person B may "step into the shoes" of the responsible person and be eligible to receive reimbursement from VPSTF after paying a financial responsibility of $5,000.

Person B may also obtain the written consent of the responsible person to relinquish its rights to the Fund. At this point, Person B may "step into the shoes" of the responsible person and be eligible to receive reimbursement from VPSTF after paying the responsible person’s financial responsibility requirement.

Example 3-5. Responsible Person Determination - DEQ Never Received a Notification Form for the Site and the Current Land Owner Never Used the USTs.
Example: Person A owns a property that contains several regulated USTs. In 1985, this person ceases to use the USTs. Person B purchases the property from person A in 1988. In 1995, contamination associated with the old tanks is found at the site. Who is the responsible person? Answer: Person B is the responsible person unless he can show DEQ (using the UST Notification Form, bill of sale, etc.) that someone else is the owner of the leaking USTs. Many new owners claim that they never used the USTs, therefore, they should not be responsible for taking corrective action. Use is not an issue unless the USTs were last used prior to November 8, 1984. Since the USTs in this case were in use after November 8, 1984, the new owner (person B) bought the problem. The new owner may also claim that the release occurred when someone else owned the tanks. Unless person B can provide documentation that a release was reported to the DEQ, the Fire Marshall, or a building official before he took title to the property, person B is the responsible person.

3.1.1.2 Determining Who is an UST Operator

The definition of operator in Section 62.1-44.34:8 of the Code of Virginia states:

> "Operator means any person in control of, or having responsibility for, the daily operation of the underground storage tank."

An operator is the person or entity having ultimate authority or the right to exercise control over the UST's day-to-day operations. An operator of an UST is a person or entity who has the responsibility for performing any of the requirements of the UST Technical Regulation. For example, an operator is a person or entity who is responsible for inspecting regulated substance deliveries; monitoring any regulated component of the UST system; or controlling surface spills of petroleum from an UST facility. Station or facility managers who are employees of the person or entity with superior authority over the UST's operations are not operators. In this case, the person with the superior authority over the USTs would be the operator.

A person may be both the operator and the owner of an UST. In addition, operators include, but are not limited to, persons or entities who operate USTs (a) leased or franchised from the UST owner, or (b) used by the operator as part of an exclusive supply contract.

Petroleum suppliers who provide product to a person or entity on a consignment basis are operators. A consignment arrangement is defined as follows: (a) the person or entity receiving the product does not purchase/own the product but does, however, receive a predetermined percentage of actual sales, and (b) the petroleum supplier has the responsibility for maintaining and gauging tanks, and performing UST regulatory requirements. A person or entity, which receives a product on a consignment basis and has no responsibility for performing any of the requirements of the UST Regulation, is not an operator of an UST.

Only the current operator is liable as a responsible person under the statute. The current operator means the operator at the time the suspected or confirmed release triggers the applicability of the UST Regulation. As such, where the leaking UST in question has no operator at the time the release is reported, it will be deemed to have no operator for purposes of determining a responsible person under the statute.

If both the UST owner and operator are unknown or unable to pay for the cleanup, the site may become a state lead site.

3.1.2 Responsible Person Determinations - ASTs Having a Capacity of Greater than 660 Gallons of Oil

Discharges of oil from facilities with ASTs of any size are governed by Article 11 of Virginia Water Control Law. Under Article 11, the person(s) responsible for cleaning up a discharge of oil is/are the person discharging, causing or permitting the discharge and any operator of the facility from which the discharge occurred. This Article differs from Article 9 in that a person who causes a discharge (sometimes called "the spiller") is also liable to conduct a cleanup, even if the spiller neither owns nor operates the facility where the discharge occurred. Additionally, the definition of operator in Article 11 includes more persons/entities than does the Article 9 definition of operator. The person who caused the discharge (the spiller) and the person who permitted the discharge (the facility operator) are equally responsible under the law. Where the spiller and the AST operator are different persons, DEQ will pursue the person who caused the discharge (the spiller).

In many instances, discharges from ASTs cannot be tied directly to a specific act committed by someone (i.e. the person causing the discharge). If the discharge from an AST of greater than 660 gallons is not a direct result of an action or failure to act by the person who caused the discharge (the spiller), DEQ staff will assign responsibility for the discharge to the person listed in the AST database as the person responsible for day to day operation of the facility or AST.

NOTE: If a the discharge was caused by a spiller and the spiller demonstrates financial incapability to perform the cleanup, DEQ will pursue the operator who is responsible for day to day operation of the tank.

The person listed on the AST registration form as the tank operator can demonstrate that someone else is the responsible person by providing acceptable written documentation that:

1. another person caused the discharge;

2. another person is responsible for the day to day operation of the AST[3-1];

3 . the discharge came from an AST that was removed by a prior operator

[3-1] In rare instances, the person or persons presently operating an AST may be able to demonstrate that the discharge came from an AST that was operated by another person at the time of the discharge (i.e. another person owned, operated, rented, chartered, or otherwise controlled the day to day operation of the tank).

If the person listed on the AST registration form as the operator (in this context, the person having day-to-day control over the AST) no longer exists, cannot be found, or is financially incapable of performing the cleanup, DEQ will then consider the AST owner listed on the registration form to be the responsible person. If neither the operator nor the owner listed on the AST registration form exist or are financially capable of performing the cleanup, staff must contact the Financial Programs Manager in SRR for further guidance.

If no registration information has been submitted for the AST, DEQ will presume that the property owner is the AST operator and responsible person. The property owner may rebut this presumption by providing acceptable written evidence that:

1. another person caused the discharge;

2. another person is responsible for the day to day operation of the AST;

3. the discharge came from an AST that was removed by a prior operator.

Table 3-1. Summary: responsible person priority for discharges from AST having a capacity of greater than 660 gallons of oil.
1. the person causing the discharge (the spiller)
2. the operator who is responsible for the day to day operation of the AST
3. the AST owner
4. the person who owns the land where the AST is located
5. another person (depending upon information presented to and obtained by DEQ)

Example 3-6. Discharge from an AST at a facility that has not submitted a registration form to DEQ
Example: A discharge of #2 heating oil occurs from a 100,000 gallon AST at a bulk oil facility. DEQ does not have an AST registration form for the facility. Who is the RP? Answer: There is no evidence of a spiller in this example since we have no evidence that the discharge was caused directly by an act or failure to act. Since there is no spiller, DEQ would go to the registration form. Since a registration form was never submitted in this case, the DEQ will go to the present property owner. The present property owner is the RP unless this person provides acceptable written evidence that another person is responsible for the day-to-day operation of the AST, or that the AST.

3.1.3 ASTs of 660 Gallons or Less and Exempt USTs

Discharges of oil from ASTs of 660 gallons or less and exempt USTs are governed by Article 11 of State Water Control Law. Under Article 11, the person responsible for cleaning up a discharge of oil is the person discharging, causing or permitting the discharge and any operator of the facility from which the discharge occurred. When DEQ receives a report of a discharge from an AST of 660 gallons or less or from an exempt UST, DEQ will consider the person who caused the discharge (the spiller) to be the responsible person.

In many instances, discharges from these tanks cannot be shown to be a direct result of an act or failure to act committed by a spiller. If the discharge from an AST of 660 gallons or less or an exempt UST is not a direct result of an act or failure to act, DEQ will presume that the property owner is the responsible person. The property owner may rebut this presumption by providing acceptable written evidence that:

1. another person caused the discharge;

2. another person is responsible for the day to day operation of the tank (see exception for home heating oil tanks in rental situations below);

3. the discharge came from a tank that was removed by a prior operator.

Example 3-7. Responsible Person Determination - exempt USTs remaining on a property
Example: Person A purchases a farm which includes a house and several barns. Person B (the seller), who owned the property for the previous 8 years, did not farm the land and stated that he had no knowledge of any USTs on the property. Five years after purchasing the farm, Person A encounters a 500 gallon diesel UST while adding footers to expand one of the existing barns. Soil around the tank had a strong diesel odor indicating that oil had been discharged from the UST. Who is the responsible person? Answer: USTs are considered fixtures of the property (there are no notification requirements for exempt USTs). When the property was transferred from person B to Person A, ownership of the UST transferred with the sale of the property. The fact that neither person used or even knew of the presence of the UST is irrelevant. The present property owner (Person A) is the responsible person. NOTE: This scenario would apply to any exempt UST

Staff may encounter situations where home heating oil USTs or ASTs of 660 gallons or less are present on a rented residential property. Article 11 defines the facility "operator" to include persons who own, operate, charter, rent, or otherwise exercise control over or have responsibility for a facility. Therefore, both the person who rents the property and uses the tank and the tank owner are "operators" of the facility and both are responsible persons under Article 11.

Under most residential rental agreements, the tank owner (usually the property owner) is responsible for maintaining the tank. Since the tank owner has the ultimate authority to maintain and replace the tank, the

DEQ Storage Tank Program will first pursue the tank owner for discharges from home heating oil USTs and home heating oil ASTs of 660 gallons or less unless the actions of another person (spiller) caused the discharge.

NOTES:
1. There may be situations where the renter is the tank owner. In those situations, DEQ will first pursue the renter for cleanup.
2. Home heating oil ASTs > 660 gallons must be registered with DEQ. If there is no spiller, DEQ will assign first responsibility for discharges from these tanks to the person listed on the registration form as the AST operator (see Table 3-1).

Table 3-2. Responsible Person Priority for Discharges from Home Heating Oil USTs and Home Heating Oil ASTs of 660 gallons or less
1. Spiller 2. Tank owner 3. Person renting the residence and using the tank 4. Another person (depending upon information presented to and obtained by DEQ)

Example 3-8. Responsible Person Determination - Home Heating Oil AST of 660 gallons or Less
Example: Person A owns a house that has a 275 gallon heating oil AST. The house is rented to person B. During severe weather, the AST falls over and oil is discharged. Who is the responsible person? Answer: Both person A and person B are responsible persons. The DEQ will assign first responsibility for this discharge to the tank owner. DEQ will presume that Person A (the property owner) is the tank owner since tanks are considered to be fixtures of the property. If person A is unable to conduct the cleanup, the DEQ may look to person B since this person is also an operator of the tank and a responsible person. NOTE: Person A may rebut the presumption of tank ownership by providing evidence that someone else owns the tank.

Example 3-9. Responsible Person Determination - Home Heating Oil AST of 660 gallons or Less
Example: Person A owns land on which a trailer park is located. Person B owns a trailer within the trailer park and owns the 275 gallon heating oil AST that supplies fuel for his trailer. During severe weather, the AST falls over and oil is discharged. Who is the responsible person? Answer: The DEQ will assign first responsibility for this discharge to person B (the tank owner) since this person had the ultimate authority to maintain the AST. If person B is incapable of performing the cleanup, DEQ may look to person A since this person is also an operator of the facility (Person A owns the facility on which the oil tank is located)

3.1.4 Persons Who Have Assumed Liability for Corrective Action

As the UST and AST Programs developed, DEQ received requests for eligibility for reimbursement from the Virginia Petroleum Storage Tank Fund from property owners who are not defined as property owners or others who were not responsible persons under the State Water Control Law. These people or entities wanted to use sites for future development or sale, but were unable to begin construction or to find buyers due to contamination present at the site. In response, DEQ developed a procedure which allows interested persons, such as a current property owner who is neither the tank owner or operator, to "step into the shoes" of the owner or operator. If the interested person is willing to assume the cleanup liability of the responsible person under the law, the interested person is eligible to request reimbursement from the Fund for preapproved, eligible, reasonable and necessary costs of cleanup as if he or she is the UST owner/operator or the AST operator.

The procedure requires the interested person to assume all corrective action liability for that occurrence which the law imposes on the owner or operator, and to agree to perform the cleanup as required by DEQ. Please note that, if a lender qualifies for the lender liability exemption, the lender will not be required to provide an agreement assuming liability in order to be eligible for reimbursement.

This procedure benefits both DEQ and the interested person, particularly in those situations where the owner or operator is unknown or unable to pay for the cleanup. The interested person, who may be the property owner but not the tank owner, can clean up the property and request reimbursement from DEQ. The procedure alleviates delays in completing the cleanup due to limited resources and/or the low priority of the site on the state lead priority list.

Persons who assume liability must provide DEQ with the following written statement before they begin the cleanup or request reimbursement:

> (Name of Person Assuming Liability) assumes all liability for the completion of corrective action from the petroleum/oil contamination associated with PC #_____ and agrees to perform the corrective action in accordance with Virginia DEQ requirements.

In cases where a responsible person is unknown, deceased, no longer in existence, bankrupt or otherwise

unable to pay as demonstrated by a DEQ inability to pay determination, there is no need to obtain the agreement of the responsible party to the transfer of reimbursement eligibility for that occurrence.

In cases where there is an existing responsible person, the person assuming liability must provide the statement assuming liability described above and obtain the following signed statement from the responsible person:

> (Responsible Person Name) is the responsible person for the cleanup of the petroleum/oil release from the (insert tank type) located at (insert street address, city/county) and identified as PC #_____. (Responsible Person Name) quitclaims, assigns and releases all of its rights to reimbursement for corrective action costs from the Virginia Petroleum Storage Tank Fund associated with PC #_____ to (Name of Person Assuming Liability) and (Responsible Person Name) represents and warrants that (Responsible Person Name) has the right to make such quitclaim, assignment and release.

This agreement by the person interested in conducting the cleanup does not release the responsible person under the law from liability for cleanup or payment of third party claims. If the person who assumes liability for the cleanup is determined to be unable to pay for the cleanup at any time or fails to complete the cleanup, the Regional Office may inform the responsible person that the responsible person must complete the cleanup. The responsible person's eligibility to request reimbursement from the Fund will be restored if the responsible person completes the cleanup according to DEQ requirements.

Persons assuming liability will not be eligible for reimbursement unless the cleanup is performed in accordance with instructions from the DEQ Regional Office. In addition, persons assuming liability must complete the entire cleanup.

The Regional Office is responsible for initial identification of the responsible person for each site. The Regional Office staff may use the checklist in Appendix F to assist in making the responsible person determination. If the Regional Office is unable to determine the responsible person, the checklist and relevant documentation should be sent to the Financial Programs Manager at the Central Office for review. A written determination of responsible person status will be provided to the Regional Office and the responsible person.

3.1.5 Persons Who May Conduct Cleanups Without Assuming Liability/Fund Eligibility

The State Water Control Law was amended effective July 1, 1996, to allow certain persons or entities to conduct cleanups without assuming owner liability for USTs.

3.1.5.1 Lenders

The change to the State Water Control Law provides an exemption from liability to persons or entities who have a security interest in real property on which regulated USTs are located ("lenders"). This exemption mirrors the exemption given in the federal Resource Conservation and Recovery Act. The Environmental

Protection Agency promulgated the Lender Liability Regulation (40 CFR §280.200 through 280.230 (1997)) that allows security interest holders to foreclose on property with USTs and perform certain compliance activities (e.g., removing the UST, pumping the product out of the UST, reporting a release) without incurring liability as the UST owner. Lenders who foreclose on loans after July 1, 1996, are eligible to request that DEQ approve an exemption from UST owner liability. Lenders should notify the DEQ Regional Office staff that the lender intends to request the exemption. Regional staff should refer the lender to the Central Office Financial Programs Manager who will review the request and approve exemptions. The Financial Programs Manager will send copies of approval letters to the Regional Office. Once the lender liability exemption has been approved, the lender may choose to conduct a cleanup of the site. The lender is required to obtain Regional Office preapproval for all activities and conduct the cleanup in accordance with DEQ requirements in order to be eligible for reimbursement.

Whether or not the lender agrees to conduct a cleanup, the lender would not be deemed to be an owner/responsible person under the State Water Control Law. Please note that the lender liability exemption is limited to loans made on property with regulated USTs. It does not apply to property with any other type of tank. In addition, **lenders may become responsible persons for regulated UST cleanups if they operate the USTs after the foreclosure.** Operator liability is not covered by the exemption. Any questions concerning this exemption should be addressed to the Central Office Financial Programs Manager.

3.1.5.2 Virginia Department of Transportation (VDOT)

The second change to the State Water Control Law affects VDOT. At any site where VDOT chooses to conduct corrective action activities on property acquired for transportation purposes, VDOT will not be required to assume liability or to be deemed to be the responsible person for that release. VDOT should notify the Regional Office staff of its intention to conduct a cleanup. If a release has occurred and the Regional Office staff determine that a cleanup is necessary, regional staff should request that VDOT send a letter outlining the facts of the case to the Central Office Financial Programs Manager who will review the request and approve exemptions. Copies of approval letters will be sent to the Regional Office. Once VDOT's exemption from liability has been approved, VDOT may choose to conduct a cleanup of the site. By law, there is no financial responsibility requirement imposed for these cleanups. VDOT is required to obtain Regional Office preapproval on an AAF for all activities and conduct the cleanup in accordance with DEQ requirements.

Please note that the VDOT liability exemption is limited to property acquired for transportation purposes. It does not apply to any facility where VDOT is the owner or operator of an UST or AST. Regional staff having questions regarding issues related to the VDOT exemption may contact the Central Office Financial Programs Manager for further guidance.

NOTE: VDOT must clean up the entire site, not just the portion of the portion of the site that was acquired for transportation purposes.

3.2 ABILITY TO PAY PROGRAM

If the responsible person is financially incapable of proceeding with the corrective action required by DEQ, regional staff should inform that person that the Virginia Petroleum Storage Tank Fund is available to reimburse them for reasonable and necessary costs of cleanup, whether or not the responsible person has paid the contractor. The responsible person should be cautioned not to expect full reimbursement because the amount reimbursed is subject to certain eligibility requirements, a deduction of a financial responsibility requirement, and the application of the Usual, Customary and Reasonable (UCR) rate schedule for corrective action costs.

If a responsible person claims to be financially incapable of proceeding with corrective action, even after considering reimbursement from the Fund, regional staff should inform the Financial Programs Manager in SRR so that an inability to pay application and additional guidance may be provided to the responsible person. Information that regional staff must provide to the Financial Programs Manager include:

1. responsible person name;

2. responsible person address;

3. responsible person telephone number(s);

4. pollution complaint number;

5. site name;

6. number and type of occurrences;

7. release report date;

8. identification of RP's type of business entity:
   - A. individual/sole proprietorship;
   - B. bankrupt;
   - C. corporation;
   - D. partnership;
   - E. estate;
   - F. non profit organization; or
   - G. other (limited liability company, government entity, etc.).

9. filing deadline for the next report required for the case.

10. whether a responsible person filed a tax return the previous year (this only applies to individuals).

Upon receiving this information, the Financial Programs Manager will contact the responsible person and

send the necessary forms and instructions to that person. The Financial Programs Manager will also copy the Regional Office on correspondence with the responsible person.

Deadlines for filing inability to pay claims will, to the extent possible, correspond with the deadline for the next report required for the case. The responsible person will be allowed 30 days or the date of the next report (whichever is less) to complete and return their inability to pay claim. Responsible persons should, in all cases, be allowed at least 10 days to file an inability to pay claim.

After receipt of the completed claim form and other financial information, the Financial Programs Manager will perform the Ability to Pay analysis. If the responsible person has been determined to be unable to pay but the site has not yet been referred for state lead, the Financial Programs Manager will copy the Regional Office on the determination letter sent to the responsible person. In addition, the Financial Programs Manager will send a memorandum to the regional Ground Water Manager requesting that the site be referred to state lead. If the responsible person is determined to be able to pay, the Financial Programs Manager will copy the Regional Office on the Ability to Pay determination letter sent to the responsible person. The regional Case Manager should then require the responsible person to perform the corrective action and/or refer the site to enforcement against the responsible person for failure to meet corrective action deadlines.

3.3 OCCURRENCE DETERMINATION

One of the functions that must be performed by the regional staff prior to the submittal of the first reimbursement claim is occurrence determination. Release occurrence determinations are necessary in order to establish the level of access that the tank owner or operator has to the Virginia Petroleum Storage Tank Fund (VPSTF) under Article 10 of State Water Control Law. For each occurrence, the owner or operator is eligible to request reimbursement from VPSTF between his/her financial responsibility requirement and one million dollars. If the owner or operator is eligible for third party liability costs, corrective action must be completed before third party costs will be reimbursed.

Based upon the requirements of Article 10 and the practical aspects of managing release response and corrective action, there are five factors that must be evaluated to determine the number of occurrences at a site. These factors are: type of contamination, time, location, ownership, and tank type. When a release is reported, staff must first determine if the type of contaminant released is a Fund-eligible product. In general, Fund-eligible products are petroleum motor fuels released from USTs; heating oil from heating oil USTs or ASTs; and oil on which a Fund fee is paid that is discharged from ASTs.

Once staff have determined that some or all of the release is Fund-eligible, the number of occurrences must be determined. The first consideration when determining the number of occurrences is tank ownership. Each tank owner (operator if an AST or exempt UST) is required by law to pay the financial responsibility requirement for his/her/its releases and/or discharges. Releases from tanks owned by different persons must, therefore, be considered separate occurrences.

After determining the number of owners for leaking tanks at the site, staff must consider the tank types from which releases/discharges occurred. Separate occurrences must be assigned for each different tank

type that had a release or a discharge at the site. Releases from different types of tanks (i.e. a regulated UST and an AST of greater than 660 gallons) are separate occurrences even if they are discovered at the same time.

Next, the time that the release(s)/discharge(s) occurred must be evaluated. Releases or discharges from either the same type of tank or releases/discharges from different types of tanks that are discovered during different SCR Phases must be considered separate occurrences. If releases from a gasoline UST and a diesel UST (regulated USTs) at a site are found during the Site Characterization Phase, the tanks are owned by the same person, and the Case Manager decides that a single SCR can address both releases, the release from these USTs is considered to be one occurrence. If, however, the SCR addressed only the gasoline release and the diesel release was found during the Site Characterization Addendum Phase, this would constitute two occurrences since the releases were found during different corrective action phases.

Finally, staff must consider the location of the tanks. Releases from tanks of the same type (e.g. heating oil UST) that are owned (or operated) by the same person, and discovered during the same SCR Phase may be considered one occurrence provided that their spatial proximity allows these releases (or discharges) to be addressed as part of the same SCR. If the Case Manager determines that more than one SCR or cleanup must be performed to address releases at a site, releases addressed by a separate cleanup or SCR are separate occurrences. A worksheet containing a procedure that staff may use to determine the number of occurrences at a site is included as Appendix H.

Example 3-10. Occurrence Determination - releases from multiple tanks with one owner
Example: ACME Widgets reports a gasoline release from an UST system at its vehicle fueling and maintenance facility to DEQ. During the process of collecting environmental data for the SCR, ACME Widgets finds evidence that the used oil UST at the facility has also had a release and ACME reports this to DEQ. The used oil UST is located near the gasoline UST and the Regional Case Manager determines that one SCR should be completed to address releases from both tanks. ACME Widgets completes the SCR and the Case Manager determines that Corrective Action is needed at the site. While the CAP is being developed, a release occurs from the diesel UST at the fueling and maintenance facility. How many occurrences are there at this site? Answer: There are two occurrences. ACME Widgets is the only tank owner at this site. A release from a gasoline UST (regulated UST) was reported to DEQ and triggered the investigation at the site. Before the SCR was submitted to DEQ, ACME found (and reported) a release from a used oil UST (regulated UST) to DEQ. Since the same entity owns both tanks, the tanks are both regulated USTs, the releases were discovered prior to submission of the SCR, and the Case Manager believed that one SCR could address release from both tanks, the release from the used oil UST and release from the gasoline UST can be handled as one occurrence. The diesel UST at the site is also a regulated UST. The release from this tank occurred after the SCR was submitted, therefore, this release must be considered a separate occurrence.

Example 3-11. Occurrence Determination - Multiple owners and tank types
Example: Person A owns a property containing a gasoline station and is the registered owner of three gasoline USTs and one diesel UST at that site. During the process of upgrading the 3 gasoline USTs and 1 diesel UST at the station, evidence of a release is found around two of the gasoline USTs. The release is reported and Person A begins the Site Characterization Process. During the Site Characterization process, evidence of a diesel release is found in the vicinity of a diesel UST removed by the former property owner (Person B) and contamination is found around the heating oil UST for the gas station. How many occurrences are there at this site? Answer: There are three occurrences. Person A is the owner of the gasoline USTs and the operator of the heating oil UST. The releases from the two gasoline USTs may be considered one occurrence because the same person owns those tanks, they are the same type of tank (i.e. regulated USTs), the releases were discovered at the same time, and they can be addressed as part of the same SCR. Person A is also the operator of the heating oil UST. This must be considered a different occurrence because the heating oil UST is a different type of tank. Person B is the responsible person for the diesel UST that had a release (the person who owned the UST when it was removed). The release from the diesel UST must be considered a separate occurrence because the owner of this tank is different than the owner of the gasoline USTs. If the two responsible persons agree and the Case Manager approves, a single cleanup of the tanks belonging to both owners may be undertaken. Even if a single cleanup is undertaken at this site, there are still three occurrences and each tank owner must pay his/her financial responsibility requirement.

NOTE: The number of occurrences at a site must be determined in order for a reimbursement claim to be processed for the site. Staff must, out of necessity base occurrence determinations upon the known facts at the time a reimbursement claim is submitted. Staff may modify occurrence determinations for later claims upon receipt of new information that invalidates or changes the original or latest occurrence determination.

3.4 THIRD PARTY CLAIMS

Owners/operators of regulated USTs, deferred USTs (types 3 through 5), partially deferred USTs, and excluded USTs (types 3 and 4) may be eligible to receive reimbursement for costs associated with compensating third parties for certain injuries and/or damages caused by petroleum releases (see Table 2-2 for a summary of Fund Eligibility). Staff should inform interested parties that third party claims are subordinate to corrective action claims. Corrective Action has to be completed and the case must be closed by the Regional Office before third party claims for that occurrence may be approved. **Regional staff must refer all third party claims/requests to the Financial Programs Manager in the Central Office.**

4.0 SITE WORK ACTIVITY PRE-APPROVAL REQUIREMENTS

Beginning in March 1995, it became necessary for the owner and/or operator or designated representative (e.g. consultant) to obtain Regional Office approval for all site work prior to beginning an investigation or clean-up. There are limited exceptions to this "pre-approval" requirement as discussed in this section and for emergencies and Initial Abatement Measures as outlined under "Initial Abatement Measures" in Chapter 5. The purposes of authorizing activities before they are undertaken are to: (1) ensure that all work undertaken for release response and corrective action is eligible for consideration for reimbursement from the Virginia Petroleum Storage Tank Fund (VPSTF); and (2) reduce the number of iterations of SCRs (Site Characterization Reports) and other reports by allowing regional staff, the tank owner or operator, and consultant to agree on release response and corrective action activities before work is performed at a site.

4.1 ACTIVITY AUTHORIZATION FORM

Activity authorization by the Regional Office is necessary to ensure that the appropriate level of work is accomplished to reduce environmental risks to an acceptable level. If an owner or operator wishes to conduct work in excess of that required by the Regional Office, the owner or operator may conduct such work. However, the owner or operator will *not* be eligible for reimbursement from the VPSTF for work performed in excess of that which was required and authorized by the regional Case Manager.

The mechanism through which approval of site work is requested by the owner or operator and granted by DEQ is the Activity Authorization Form (AAF). Owners or operators planning to seek reimbursement from the Fund must submit an AAF to the Regional Office for approval[4-1]. An AAF specifies the tasks and material items necessary to complete the phase or reimbursement period. The tank owner or operator must include all tasks and material items proposed for the site on the AAF in order for DEQ to consider them for reimbursement. The scope of work to be performed during the phase should be discussed briefly in the NOTES section of the AAF. Copies of the AAFs are included in Appendix I.

NOTES: (1) DEQ has AAFs for three separate time periods as well as AAFs for discharges from small heating oil tanks. Please use the AAF that corresponds with the appropriate usual and customary rate (UCR) schedule as discussed in Section 4.2 of this Manual.
(2) While every effort is made to keep current reimbursement information and forms in this manual, reimbursement procedures may change before this manual can be updated. Consultants and Responsible Persons using this manual should check the Virginia Petroleum Storage Tank Fund Reimbursement Guidance Manual to ensure that they are using the most current forms and procedures. Failure to use current forms and procedures may result in the denial of claimed costs.

[4-1] Regional staff may, at their discretion, direct responsible persons not having Fund access to submit AAFs for approval.

In addition to the AAF, the claimant must submit the following information to the Regional Office when the first AAF is submitted for a particular site.

1. A topographic map illustrating the site (e.g. the appropriate section of a 7.5 Minute U.S.G.S. Quadrangle). At least one-half mile of surrounding area should be visible on the topographic map.

2. An appropriately scaled 1"=25' to 1"=50' site map illustrating locations of on- and near off-site buildings, storage tank locations (present and former), contamination (if known), sample locations, locations of proposed borings and monitoring wells and other site work, an arrow indicating expected ground water flow direction, and a north arrow. Basic risk information available from a site visit, such as the nature of the site/area water supply source, presence of basements, nearby surface water receptors, etc. must be included on the site map (Task T014). Regional staff may authorize T014 only once per site.

Upon receipt of the AAF, the Regional Case Manager will review the proposed activities and approve or disapprove the work planned. It is important for DEQ staff to advise responsible persons and consultants that approval of work outlined in the AAF *does not* guarantee reimbursement of *costs* charged or incurred for the completion of these activities. The work approved must be verified by the Regional staff as: (1) having been acceptably performed (see Section 4.3.4); (2) necessary; and (3) eligible for reimbursement. In addition, Usual and Customary Rates (UCRs; see Appendix J) will represent the *maximum* dollar amount that DEQ will consider for reimbursement unless three acceptable bids received by the responsible person (or his/her consultant) can demonstrate the reasonableness of incurred costs. It is the joint responsibility of the consultant and the owner or operator to reach a mutual understanding of the prices charged by the consultant and how these prices relate to the DEQ UCRs.

4.2 USUAL AND CUSTOMARY RATE (UCR) SCHEDULES

DEQ has developed three separate Usual and Customary Rate (UCR) schedules (see Appendix J) for task and material items that are eligible for reimbursement. Each UCR schedule may be used for work performed only within the effective dates and transition periods as listed below. Costs listed on the UCR schedules for tasks and materials represent the maximum amounts that DEQ will reimburse for these items. The DEQ also has developed AAFs for discharges from heating oil tanks of 1000 gallons or less using the rate schedules listed on the 1/98 UCRs.

4.2.1 1289 UCR Schedule

The 1289 UCRs apply when Corrective Action activities were initiated after December 21, 1989, and prior to March 1, 1995. When a Corrective Action Phase or Reimbursement Period using 1289 UCRs continues beyond the 1289 UCR effective date (February 28, 1995), the 1289 UCRs remain in effect until a new Corrective Action Phase or Reimbursement Period is initiated. Costs for Work Performed units listed on a 1289 AAF for a Corrective Action Phase or Reimbursement Period that started after February 28, 1995,

will be denied.

4.2.2 395 UCR Schedule

The 395 UCRs apply when the Regional Office receives the first AAF for a new Corrective Action Phase or Reimbursement Period after February 28, 1995, and prior to January 1, 1998. When a Corrective Action Phase or Reimbursement Period using 395 UCRs continues beyond the 395 effective date (December 31, 1997), the 395 UCRs remain in effect until the first AAF for a new Phase or Reimbursement Period is received by the Regional Office. Costs for Work Performed units on a 395 AAF for a Corrective Action Phase or Reimbursement Period that started before March 1, 1995, or after December 31, 1997, will be denied. For post approval, use the AAF and UCR Schedule that would have applied had the AAF been submitted before work was initiated.

4.2.3 198 UCR Schedule

The 198 UCRs apply when the Regional Office receives the first AAF for a new Corrective Action Phase or Reimbursement Period on or after January 1, 1998. Costs for work performed units listed on a 198 AAF for a Corrective Action Phase or Reimbursement Period that started before January 1, 1998, will be denied. For post approval, use the AAF and UCR Schedule that would have applied if the AAF had been submitted before work was initiated.

4.3 ACTIVITY AUTHORIZATION PROCEDURES

The Activity Authorization Form must be submitted to the Regional Office for approval in accordance with the schedule established by the regional Case Manager. The scope of work must be justified and listed in terms of specific tasks and material items from the appropriate UCR Schedule (Appendix J) and a brief narrative must be included in the NOTES section of the AAF. The Case Manager will review the AAF and may require changes, such as the number and location of monitoring wells, number and type of samples, etc. Once the Case Manager approves and signs the AAF, the owner or operator may commence with work listed on the AAF.

Activity Authorization Process:

1. The owner or operator (or their designee) fills out and submits the AAF to the Regional Office before site work begins.

2. The regional Case Manager reviews the AAF, approves appropriate activities and units, and sends a copy of the signed AAF to the owner or operator. The Case Manager may call the owner, operator, or consultant to discuss the scope of work, may independently revise the AAF, and/or may request submittal of a revised AAF. The Case Manager keeps the original AAF, submitted with the Activity Authorization Package, for the case file.

Regional staff will respond to AAF submittals as soon as possible and attempt to return AAFs to the owner or operator within two weeks.

3. The owner or operator may initiate work as approved on the AAF once the signature copy is received.

To facilitate a more rapid turn around time for AAF submittal, revision, and approval, the owner, operator, or consultant may fax AAFs to the Regional Office. Regional Office fax numbers that may be used for this purpose are as follows:

Southwest Regional Office	(540) 676-4899
West Central Regional Office	(540) 562-6860
Northern Virginia Regional Office	(703) 583-3821
Piedmont Regional Office	(804) 527-5106
Tidewater Regional Office	(757) 518-2009
Valley Regional Office	(540) 574-7844
South Central Regional Office	(804) 582-5125

Case Managers must be cognizant that although certain activities may be required by laws other than Articles 9 or 11 or Parts V and VI of the UST Technical Regulation, these activities may not be eligible for VPSTF reimbursement. For example, costs to manage hazardous wastes (e.g. PCBs, chlorinated solvents) are not eligible for VPSTF reimbursement even though these activities are required by other laws. Costs to dispose of petroleum contaminated soil in accordance with the Solid and Hazardous Waste Management Regulations are only eligible for reimbursement if the Case Manager decides that this soil must be disposed to successfully complete Corrective Action at the site.

Federal facilities, unlike most tank owners or operators, are not eligible for reimbursement from the VPSTF. Regional staff may use their discretion when deciding if a particular Federal facility must submit AAFs. It is recommended that regional staff consider the objective of minimizing the number of report revisions when deciding whether AAFs should be required for a particular Federal facility.

During the course of evaluating information submitted on AAFs, regional staff should be aware of the types of errors that are frequently encountered. It is important for regional staff to find these errors as early as possible so that corrections can be made with minimal disruption of the reimbursement process.

Listed below are several of the primary items that staff should look for when evaluating AAFs. Additional items that staff should consider when evaluating AAFs are listed on the Work Verification Checklist (Appendix K).

1. AAFs must be used. Interim VPSTF Claim Worksheets are no longer accepted.

2. Use the AAF that corresponds with the appropriate UCR Schedule (see Sections 4.2 through 4.2.3 of this Manual).

3. DEQ cannot reimburse responsible persons for costs associated with ineligible activities.

When verifying work performed at a site, staff should compare the work performed with the list of ineligible activities provided at the end of each verification form to ensure that the activities and items claimed are eligible for reimbursement.

NOTE: The list of ineligible activities provided as an attachment to the verification form is shorter than the list of ineligible costs provided in Volume I of the Reimbursement Manual. The list of ineligible costs provided in the Reimbursement Manual contains costs that are ineligible by Statute as well as costs that staff will not observe when verifying work performed.

4. Use only the Corrective Action Phases listed in Section 4.4.

5. Do not approve multiple phases on a single AAF (i.e. Site Characterization/Site Characterization Addendum). Approve only one phase per AAF.

6. Make sure all items claimed and changes made on the AAF are legible.

7. On 395 and 198 AAFs, please remember that tank removal costs including: (1) cost to excavate the tank pit; and (2) cost to remove the tank are not eligible for reimbursement unless tank removal is performed as part of the Corrective Action Plan Implementation Phase. If necessary, regional staff may grant written Interim Authorization and authorize the work under the CAP Implementation Phase. Work performed under Interim Authorization, for which DEQ does not have UCRs, must be bid in accordance with the Bidding Procedure for Corrective Action Implementation.

8. At leaking UST sites, the highest level of contamination is frequently found in the soil that was excavated in order to remove the UST(s). The DEQ recognizes that this soil from the tank pit area often contains a significant percentage of the total mass of contaminants released at the site and this soil should be properly disposed as part of Initial Abatement. Although tank removal and soil excavation needed to remove the tank are not eligible for reimbursement, regional staff should approve the loading, hauling, and disposal of contaminated soil that was removed along with the UST. Table 7-1 lists tank capacities and associated soil amounts to be used for approval of loading, hauling, and disposal. Costs to backfill the tank pit should also be approved.

NOTE: Regional Staff should check soil analytical information to ensure that soil disposal was justified. Disposal of uncontaminated soil should not be approved.

9. Many storage tanks are located in areas that pose accessibility challenges. Consequently performing investigative and corrective actions is often difficult unless various structures or landscape elements are removed. **When authorizing fund eligible work at storage tank sites, DEQ staff should only authorize structure removals that are absolutely essential to the investigation or remediation. Costs to repair or replace structures that were removed to facilitate an investigation or cleanup are not reimbursable**. For example, units to replace or repair of the following structures commonly affected at

storage tank sites will not be authorized:

wall or fence,
deck, patio, or porch,
walkway, driveway, or parking lot
heat pump/air conditioner,
shed, and
bushes/shrubs.

4.3.1 Work Plan Changes After Initiation of Site Work

Conditions encountered during Release Investigation and Site Characterization will at times necessitate changes in the scope of work outlined in the Activity Authorization Package. In order to allow moderate changes in work scope, the AAF contains two columns. The first column is for the best estimate of the anticipated level of site work. The second column allows for the usual contingencies that can occur during actual site work. Units listed in the contingency column are in addition to those in the proposed column. The owner, operator, or consultant may include additional footage for such things as an extra monitoring well, deeper than expected ground water, and additional sampling and analysis commensurate with the additional well/drilling. This column also may be used for reasonably anticipated changes in the scope of work. For example, the planned work scope for a release expected to be minor may involve the installation of one monitoring well. The contingency built into the second column of the AAF might include the completion of two additional wells should site conditions warrant this activity.

If unforeseen conditions necessitate changes in excess of the proposed plus contingency amounts, the owner, operator, or consultant must obtain approval from the Case Manager before proceeding. In situations where the owner, operator, or consultant recognizes that additional work is necessary but it is an evening or weekend and the regional Case Manager is not available, the owner or operator may proceed with additional work at his own risk and must contact the Regional Office on the next business day. If the regional Case Manager agrees that the additional work was indeed necessary, the Case Manager will direct the owner or operator to either submit a revised AAF or develop an additional AAF for just the additional work. If the Case Manager does not agree that the work was necessary, he/she will modify the AAF or note on the AAF that the work was not approved and the work will not be eligible for consideration for reimbursement from the VPSTF.

One reason the activity authorization procedure was developed was to reduce the number of inadequate Site Characterization Reports. Staff should encourage communication with the owner or operator to allow for the submission of complete reports. If it is apparent during the development of a report that the original scope of work has changed, the regional Case Manager should authorize additional work to allow for a complete investigation and report. When the scope of work changes at a site, the owner or operator must submit an AAF to the Regional Office for approval before proceeding with the additional release response and corrective action activities.

NOTE: Changes in the scope of work should not be confused with inadequately or improperly performed work. If staff believe that the work has been improperly or inadequately performed, they may refuse to verify the work or verify a smaller number of units on the AAF. See Section 4.3.4 for additional information.

4.3.2 Post-Approval of Work

Starting in March 1995, tank owners and operators were required to receive approval from DEQ for release response and corrective action activities prior to the initiation of those activities. DEQ realizes, however, that there are certain types of situations where pre-approval is not possible. One such situation exists when the release causes a hazardous condition. In this instance, the owner or operator must take immediate action to abate the hazard regardless of whether activities have been pre-approved. When emergency actions have been taken without prior approval from the Regional Office, the owner or operator must contact the Regional Office at the first opportunity and submit an AAF to the Regional Office indicating the activities already initiated and the activities needed to complete that particular phase of work. Regional staff will then approve or disapprove the work depending upon whether they believe the work was necessary to abate hazards caused by the release.

It must be noted that work performed at the direction of local officials is not automatically eligible for reimbursement. When work is performed in accordance with directives from local officials and has not been pre-approved by the Regional Office, regional staff will evaluate that work on subsequently submitted AAFs and determine if it was necessary or warranted to comply with the requirements of Articles 9 or 11 or Parts V and VI of the UST Technical Regulation.

A second situation where an owner or operator does not need prior approval for site work is when site conditions make it necessary to exceed the proposed plus contingency units agreed upon in the approved AAF and the regional staff are not available (i.e. weekends or evenings). The owner or operator may proceed with the additional site investigation activities realizing that the regional Case Manager may consider these activities unnecessary and that DEQ might not reimburse the costs incurred for them. In this instance, it is highly recommended that the responsible person contact the Regional Office during the next business day regarding the additional investigative activities.

In summary, post approval of work is possible and warranted in certain situations. Regional staff have the authority to post approve work. Regional staff should, however, advise owners or operators and consultants of the risks associated with post approval.

NOTE: The tank owner or operator must report releases to DEQ (see Section 2). Actions taken more than 24 hours prior to DEQ's receipt of a release report will not be considered for reimbursement regardless of whether these actions were warranted. Owners and operators of Exempt USTs 1 and 2 and heating oil ASTs can satisfy the 24 hour release reporting requirement by contacting the local emergency coordinator (Fire Marshal, Dept. Of Emergency Services, etc.). The owner or operator of an exempt UST 1 or 2 or a heating oil AST is still required to have an AAF signed by the Regional Office prior to submitting a reimbursement claim. Regional staff have the discretion not to approve work required by the local emergency coordinator if this work is not deemed necessary for corrective actions at the site.

4.3.3 Triggers

Trigger limits were established to provide responsible persons with a level of comfort that DEQ would post-approve specific types of activities undertaken to abate an immediate hazard. Although pre-approval was not needed for these triggered activities, the responsible person was required to justify the necessity of performing these activities in order to obtain post-approval from the regional staff. In 1997, DEQ evaluated the need for these triggered items and decided that trigger limits for new work were no longer necessary since all work that is not pre-approved, regardless of whether there is a trigger limit for that work, must be justified before it is approved by the Regional Office.

4.3.4 Verification of Work Performed

The owner or operator must include a completed copy of the AAF with the WORK PERFORMED column completed along with the required report for each phase of corrective action. **The AAF should not be bound in the required report.** If the AAF is not included, regional staff must decide whether to advise the owner or operator that the AAF has not been submitted and that reimbursement claim processing will not proceed until the AAF is completed. When making this decision, regional staff should consider the responsible person's financial responsibility level and any discussions that they have had with the responsible person regarding reimbursement from the VPSTF. In instances where the responsible person is not contacted about a missing AAF, it is recommended that staff document the reason(s) for not contacting the responsible person.

NOTE: Staff should be aware of the possibility that the responsible person will decide to apply for reimbursement from the VPSTF after informing the regional staff that he/she/it is not going to seek reimbursement.

Once a complete report and AAF are received by the Regional Office, staff will complete the report review process and verify activities and items listed on the AAF within 30 days. Regional staff must consider the following when verifying work performed:

1. Starting on July 1, 2000, any case closed more than two years prior to DEQ's receipt of the reimbursement package has no fund access. Staff receiving AAFs for verification should first check to see if the case was closed more than two years prior to the date that the AAF was received. If this is the case, regional staff should contact the reimbursement staff in SRR to determine if the claim was filed within the two-year filing period. If the claim was not filed on time, there is no need to verify the AAF.

2. A general evaluation of work performed should be made by comparing the AAF(s) with the report for that phase of corrective action or reimbursement period and then determining whether or not the report reflects the scope of work authorized. Some items can be verified using tables, boring logs, analytical data sheets, and other information contained in the report. The scope of work listed on the AAF can be compared to the number of feet, diameter, analytical methods, and number of analyses listed in the corresponding report. Other activities can only be inferred from information contained in the report. If monitoring wells were installed, it may be inferred that there was a

mobilization for this activity and that line location/mapping was probably performed.

3. Work performed units on the AAF that exceed the approved units (proposed plus contingent) or that were not previously approved (i.e. the proposed and contingent columns are blank) may be verified as being necessary provided that the regional Case Manager believes there is justification for the additional units.

4. Staff should not verify units on the AAF for improperly or inadequately performed work. When a deficient report is received, staff may: (A) refuse to verify the AAF for that report (i.e. treat the Phase as incomplete); or (B) verify a smaller number of units for that report than were originally authorized on the AAF. The decision to verify a smaller number of units than what was originally authorized should be based upon whether the case may, in the judgment of the Case Manager, proceed to the next Corrective Action Phase. If the report is so deficient that the case cannot proceed to the next Corrective Action Phase, the Case Manager should contact the responsible person, inform them that the Phase is not complete, and return the AAF. If the report failed to address issues identified by DEQ but the Case Manager believes that the deficiencies can be corrected during an addendum phase, the Case Manager may verify a smaller number of units for that report than were originally authorized on the AAF.

5. Staff should not verify activities associated with ineligible releases. It is the responsibility of the claimant to segregate eligible and ineligible activities.

6. Staff should not verify ineligible activities, even if they were performed to address an eligible release. A list of ineligible activities is included in the attachment to the AAF Verification Form.

7. The DEQ contractor will initiate the claim review process after receiving both the reimbursement application from the claimant and the verification package from the Regional Office.

8. Errors in the reimbursement claim or the verified AAF package may be corrected up to the time the DEQ contractor completes the claim review and forwards the reimbursement decision to SRR for final authorization. Claimants, upon finding errors in their reimbursement claim or AAF, may contact the DEQ contractor and request in writing that the claim be rejected **(only the claimant, not the consultant, may request claim rejection**). Provided that the claim review has not been completed, the claim will be rejected. The claimant may then correct the errors, send a corrected AAF to the Regional Office for verification (if applicable), and re-submit the reimbursement application.

The petroleum clean up verification forms for verifying work listed on AAFs are contained in Appendix M. If the owner or operator is not interested in seeking reimbursement, completion of the verification form by the Case Manager is not required. Regional staff should be aware that responsible persons have submitted claims for work that they had previously assured the Case Manager they would not claim.

Regional staff may wish to notify the reimbursement staff in Central Office if they receive a "Work Performed" AAF which they do not intend to verify.

4.4 CORRECTIVE ACTION PHASES

Corrective Action Phases are the DEQ recognized steps in the Release Investigation and Corrective Action Processes. Except for claims associated with reimbursement periods (see Section 4.5), reimbursement applications may be submitted only after the completion of one or more Corrective Action Phases. For the purposes of reimbursement, only the corrective action phases listed below may be used when completing and approving an AAF. The regional Case Manager should review AAFs to ensure that the correct and valid phase is listed.

Corrective Action Phase	Report
Release Investigation[4-2]	Release Investigation Report[4-2]
Initial Abatement	Initial Abatement Report
Site Characterization	Site Characterization Report
Site Characterization Addendum	Site Characterization Report Addendum
Phase II Initial Abatement	Phase II Initial Abatement Report
Post Site Characterization Monitoring	Periodic Monitoring Report
Corrective Action Plan Development	Corrective Action Plan
Corrective Action Plan Addendum	Corrective Action Plan Addendum
Corrective Action Plan Implementation	Monitoring/Operating Reports
Site Closure	Site Closure Report

4.5 CORRECTIVE ACTION PHASES WITH REIMBURSEMENT PERIODS

Unlike most Corrective Action Phases, work for Post Site Characterization Monitoring and Corrective Action Plan Implementation may take place over an extended period of time (greater than one year). DEQ realizes that preventing responsible persons from obtaining reimbursement until they complete Post Site Characterization Monitoring or CAP Implementation may pose economic difficulties and provide a deterrent to completing corrective actions at a site. Claimants, therefore, do not need to complete Post Site Characterization Monitoring and Corrective Action Plan Implementation prior to submitting reimbursement claims for work performed during these phases.

[4-2] The Release Investigation Phase and Release Investigation Report are recognized corrective action phases/reports for the 198 reimbursement program.

Claim submissions for work performed during these phases is based upon "Reimbursement Periods" established by the responsible person. Individual Reimbursement Periods are established using the earliest and latest invoice dates. A reimbursement claim for a particular Reimbursement Period must include all of the costs for work performed during that Reimbursement Period. Costs submitted in later reimbursement claims that overlap a previous Reimbursement Period will be denied. Only two claims per calendar year may be submitted for Post Site Characterization Monitoring and only two claims per calendar year may be submitted for Corrective Action Plan Implementation.

Example 4-1. Reimbursement Periods
Example: The Corrective Action Implementation Phase of work is initiated on June 1, 1996. A remediation system is installed at the site and a reimbursement application is submitted on October 15, 1996, with invoice dates ranging from June 11, 1996, to October 1, 1996. What is the Reimbursement Period for this claim? Answer: The Reimbursement Period for this claim is June 11, 1996, to October 1, 1996. The next CAP Implementation Phase reimbursement application cannot include any invoices dated between June 11 and October 1, 1996.

4.6 BIDDING

The pre-approval procedure for materials and equipment needed to implement the Corrective Action Plan at a site is different form the procedure used during other phases of corrective action. DEQ requires the responsible person to obtain bids for materials or equipment needed for CAP Implementation that have no established UCR and will cost more than $500 over the duration of the CAP Implementation Phase. Regional staff may also require bidding in any Phase where DEQ believes bidding is advantageous to the Commonwealth.

Prior to initiating work in a phase, the responsible person may elect to use bidding to demonstrate a DEQ established cost for a Task or Material is unreasonable.

DEQ expects that bidding will be used most often during the CAP Implementation Phase, since this phase typically includes the purchase and installation of remediation systems for which DEQ has not established UCRs. The following section provides guidance as to when bidding is required and how to properly bid work in order to be eligible for reimbursement.

4.6.1 Role of the Primary Consultant

The responsible person may not have the technical expertise to develop bid specifications and review incoming bids for implementing corrective action plans or other Phases. The following procedures assume that the responsible person will retain a primary consultant to assist with the bidding process and oversee site work. Functions the primary consultant may perform at most sites can include:

1. preparing engineering design and specifications for remediation systems;

2. developing bid solicitations;

3. reviewing incoming bids and selecting the winning bids;

4. overseeing work performed by subcontractors;

5. installing the remediation system;

6. providing project management throughout the corrective action process;

7. operating and maintaining the remediation system;

8. monitoring site conditions and remediation system effectiveness;

9. preparing status reports as directed by DEQ;

10. preparing or assisting with reimbursement application submittal; and

11. removing the remediation system.

The primary consultant is not required to bid any DEQ established Task or Material that is authorized on an AAF. The personnel time needed for performing primary consultant functions must be listed on the Material section of the AAF. When requesting personnel time to perform these functions, the primary consultant must list the specific activities to be performed in the comments section of the AAF.

A consultant may not bid on scopes of work at sites where it is the primary consultant.

4.6.2 Ensuring a Fair Bid Process

The responsible person or primary consultant should make every effort to ensure the bidding process is fair and unbiased because this is essential for effective competition. A list of contractors to be invited to bid should be prepared. Each contractor should be evaluated for financial capacity, integrity, and for the ability to complete a project of the size, scope, and complexity required. Those invited to bid should be fully qualified contractors who can meet all contract requirements. The responsible person or primary consultant should allocate sufficient time for bidders to prepare their bids. All bids should be solicited at the same time, allowing each bidder equal time to prepare a response. All bids should be delivered to a pre-designated place, not later than a specified time. A tabulation of all bids should be furnished to each bidder within ten days of the bid date and, for larger scope items, it is preferable that bids be opened in the presence of all bidders. By provisions in the instructions to bidders or in advertisements, the responsible person typically retains the right to reject any and all bids. However, rejection should not be used as a device to accept a bid submitted after the prices of others were made public, or to obtain an estimate of the cost of the work which is then awarded in separate contracts or to a bidder selected in advance. Any irregularities in the bids may be waived, provided this is done after careful study and in good faith. Under no circumstances should a bidder be permitted to alter a bid after all bids have been opened. The contract

should be awarded to the lowest responsible bidder.

For more detailed guidance in competitive bidding procedures, refer to the American Institute of Architects Document A501/Associated General Contractors of America Document 325; *Recommended Guide for Competitive Bidding Procedures and Contract Awards for Building Construction*.

4.6.3 The Bid Process

Step 1. The Responsible Person or the Primary Consultant Prepares and Submits Bid Summary and Activity Authorization Forms to the Regional Office for Approval

The responsible person or primary consultant will identify scope(s) of work to be bid as well as work to be performed based upon the UCR Schedule. To obtain approval for these activities, both a Bid Summary Form and an AAF must be submitted. Material or equipment which will be bid must be listed on the Bid Summary Form (see Appendix N) and assigned a scope of work number. Tasks or materials which utilized UCRs must be listed on an AAF (see Appendix I).

All non-bid activities planned for completion during the Phase or Reimbursement Period must be included on an AAF. AAFs should include personnel time needed to develop bid solicitations, evaluate bids, and other necessary items listed in Section 4.6.1. The Bid Summary Form and AAF must be submitted to the Regional Office for approval.

Every item or activity must be listed on either the Bid Summary Form or the AAF, not both.

Step 2. Bid Summary and Activity Authorization Forms are Approved and Returned to the Responsible Person

The Case Manager will review the AAF(s) and approve appropriate activities and units. The responsible person may also be directed to obtain bids for any task, equipment, material, or service and be required to modify the AAF and Bid Summary Forms accordingly.

The Case Manager will evaluate the information listed on the Bid Summary Form(s) and ensure that necessary items and services are included and that the scopes of work are appropriate. The Case Manager may request engineering designs or other detailed information on which the scopes of work on the Bid Summary Form are based. Once the Regional Office staff completes its review, copies of the approved AAF(s) and Bid Summary Form(s) will be returned to the responsible person.

The decision to rent or purchase equipment should be based on the option that gives the lowest overall cost. The responsible person or consultant may be required to demonstrate that purchasing is more cost effective than leasing or renting. The Case Manager may require rental or purchase after reviewing the analysis.

If additional work or change orders for bids are required, additional AAFs and Bid Summary Forms must be submitted to the Regional Office for approval. See Section 4.6.7 for instructions regarding change

orders.

Step 3. Responsible Person Obtains and Submits Bids to the Regional Office for Review

After receiving an approved Bid Summary Form, competitive bids for the scopes of work listed on the Bid Summary Form(s) may be obtained. A minimum of three qualified bids must be obtained for each scope of work identified on the Bid Summary Form. After all bids are received, copies of the bid solicitations, completed Bid Comparison Form (see Appendix N), and bids or phone bid documentation must be sent to the Regional Office for verification. The Bid Comparison Form must list the bids which were received for each scope of work, who provided the bids, the total amount of each bid, and the lowest bid that met the specified scope of work.

Copies of the bids must be attached to the Bid Comparison Form and must be arranged in the order in which they are listed on the form.

Step 4. The Regional Office Reviews the Bids

Upon receiving copies of the bid solicitations, Bid Comparison Form(s), and bids or phone bid documentation, the Case Manager will confirm the bid selections. The Regional Office will retain copies of the bids and send a signed copy of the Bid Comparison Form to the responsible person, authorizing the responsible person to award the contracts.

Step 5. The Owner/Operator Initiates Bid Work

Once the Bid Comparison Form(s), signed by the Regional Office has been received, corrective action may begin.

Step 6. Submittal of Completed Bid Work Progress and Activity Authorization Forms

Before a reimbursement application can be processed, the responsible person must submit to the Regional Office completed Bid Work Progress Forms, AAFs, and reports or other related work products required for the Phase or Reimbursement Period. The Bid Work Progress Form lists work performed during the Phase or Reimbursement Period and indicates the cumulative percentage of work completed for each scope of work. The AAF indicates the number of units of work performed for non-bid items for the same Phase or Reimbursement Period.

The Case Manager at the Regional Office will review the AAF and the Bid Progress Form to verify that the specified work has been completed. The Case Manager is responsible for forwarding AAFs and Bid Work Progress Forms to the DEQ Central Office for reimbursement processing. DEQ will reimburse up to the amount of the lowest bid which met the scope of work approved by the Regional Office.

4.6.4 DEQ General Bidding Requirements

1. The bids must be site-specific and the scope of work must be clearly defined.

2. The bids must be obtained before the work is performed.

3. Do not mix activities, tasks or materials eligible for reimbursement with items or activities which are not eligible for reimbursement. Mixing bid items with activities or materials not eligible for reimbursement will invalidate the bid and affect the amount eligible for reimbursement.

4. Consultants cannot provide bids at sites where the consultant or its firm are acting as the primary consultant. DEQ believes that it would be a conflict of interest for the primary consultant to submit a bid for a scope(s) of work when the primary consultant also evaluates the incoming bids.

NOTE: The primary consultant may perform any task or provide material or equipment for which there are DEQ established UCRs.

5. A minimum of three qualified bids must be received for each scope of work listed on the approved Bid Summary Form. If three qualified bids are not obtained, the primary consultant should evaluate remedies including soliciting bids from additional contractors and/or revising the specifications as appropriate to encourage additional bids and re-bid. The primary consultant and/or responsible person should notify the Regional Office for guidance if three bids cannot be obtained.

6. A written bid must be received from each bidder in the format specified by the primary consultant. However, DEQ requires the cover page of each bid to include:
   A. scope of work;
   B. scope of work number;
   C. name of the bidding company;
   D. name of the person preparing the bid;
   E. date that the bid was offered;
   F. specific service and number of units, or materials/equipment and number of units;
   G. total price for that service or items. and unit prices where applicable; and
   H. signature of an authorized agent for the bidder.

7. Phone bids are acceptable for bid scopes of work totaling less than $2,000. The following information must be submitted to the Regional Office documenting the phone bids:
   A. scope of work;
   B. scope of work number;
   C. name of the bidding company;
   D. name of person providing the bid;
   E. date that the bid was offered;
   F. specific service and number of units; or materials/ equipment and number of units;

G. total price for that service or items. and unit prices where applicable; and
H. names and titles of individuals obtaining the phone bids.

8. All bids must be for the same scope of work including number of units and equipment size(s). Lump sum totals must be shown for all bids received and contracts will be awarded based on the lump sum amounts. Unit prices must also be shown when applicable.

9. Each scope of work which is bid must be listed on a Bid Comparison Form. The Bid Comparison Form lists bids which were received for each scope of work, names of the bidders, dollar amounts for the bids, and indicates the successful bid.

10. In order for a bid to be considered valid, the scope of work listed on that bid must correspond with the scope of work approved by the Regional Office on the Bid Summary Form.

11. The responsible person and primary consultant are responsible for ensuring that work is performed according to the bid specifications and verifying that work claimed for reimbursement is completed. The responsible person and the primary consultant are responsible for completely supervising and directing the work of all subcontractors.

4.6.5 Bidding Requirements for the CAP Implementation Phase

For sites with acceptable Corrective Action Plans, the Regional Office sends a CAP approval letter to the responsible person. If Interim Authorization of a CAP is requested and necessary, the Ground Water Manager sends an Interim Authorization approval letter authorizing the requested actions to be taken under Interim Authorization. Upon receipt of the CAP or Interim Authorization approval letter, the responsible person or primary consultant will identify the scope(s) of work for activities and materials needed for the CAP Implementation Phase.

Bidding may occur at different times throughout the CAP Implementation Phase (i.e., design, construction/start-up, O&M). If the responsible person or primary consultant wishes to bid an item, a scope of work for this item or service must be developed and a scope of work number must be assigned. Bids for services, materials, and equipment may be combined or aggregated as deemed appropriate by the responsible person or primary consultant. The scopes of work that are to be bid for the duration of the CAP Implementation Phase are then summarized on a Bid Summary Form.

CAP Implementation Phase work is authorized as follows:

1. Tasks and Materials on the UCR Schedule may be listed on an AAF for authorization by the Regional Office and are not required to be bid. In some cases, the Regional Office may identify Tasks or Materials with UCRs which must be bid. If this occurs the responsible person is required to modify the AAF and Bid Summary Forms accordingly.

2. Materials and equipment not listed in the UCR schedule and cost more than $500 over the duration of CAP Implementation must be listed on the Bid Summary Form, assigned a scope of work number, and bids obtained. The responsible person also has the option of bidding any activity or item, even if there is an applicable UCR.

3. Activities or items not listed in the UCR schedule which will cost less than $500 over the duration of CAP Implementation need not be bid. Rather, they are authorized on the Material section of the AAF. On the AAF, each activity or item that does not have a Material UCR must be assigned a three-digit code beginning with "X". For each site, "X" codes must be unique, begin with X001, and be sequential (X001, X002, X003,..., X00n)

4. Task T040, General Project Management, may not be used and costs associated with this task code will not be reimbursed during the CAP Implementation Phase. Personnel time needed for project management activities should be authorized on the Material section of the AAF. The primary consultant, when requesting personnel time, must specify on the AAF the activities to be performed and the amount of time that personnel at a particular level will spend on each activity.

5. A bid scope of work may take considerable time to complete and could extend over multiple Reimbursement Periods. To request reimbursement for work performed during a Reimbursement Period, the Bid Work Progress Form must indicate the cumulative percentage of the scope of work completed. This is the percentage of the scope of work that has been completed since the CAP Implementation Phase began through the end date of the Reimbursement Period being claimed. New Bid Work Progress Form(s) must be completed to claim any remaining bid work in subsequent Reimbursement Periods.

6. An AAF that has been submitted with a CAP Implementation Phase reimbursement application cannot be used in any subsequent reimbursement applications. Work authorized on an AAF but not performed must be re-authorized on a new AAF in order to be eligible for reimbursement during a subsequent Reimbursement Period.

NOTE: To ensure site activities are not interrupted, AAFs listing activities to be performed during the next Reimbursement Period should be authorized prior to completion of the current Reimbursement Period.

4.6.6 Bidding Requirements Outside of CAP Implementation Phase

The Regional Case Manager may require the use of bidding during any phase when the Case Manager believes bidding is advantageous to the Commonwealth. If the responsible person believes a Task or Material UCR is not reasonable, DEQ will also allow the use of bidding to demonstrate the reasonableness of the costs in any Phase.

For Phases without Reimbursement Periods (see Section 4.4), all bid work must be completed and claimed in the sole reimbursement application for the Phase. The responsible person must take care to ensure that the Bid Work Progress Form and reimbursement application include all bid work completed during the

Phase. Unclaimed bid work cannot be submitted in a reimbursement application for another Phase.

In the Post Site Characterization Monitoring Phase, Reimbursement Periods are established by the claimant for submittal of applications (see Section 4.5). To request reimbursement for work performed during a Reimbursement Period, the Bid Work Progress Form must indicate the cumulative percentage of the scope of work completed. This is the percentage of the scope of work completed from the beginning of Post Site Characterization Monitoring Phase through the end date of the Reimbursement Period for which an application is being submitted. A new Bid Work Progress Form must be completed for each Reimbursement Period.

4.6.7 Change Orders

Any change to an approved bid scope of work is considered a Change Order. Change Orders can only be made to the original scope of work, not to a previous Change Order. Work which was not included as part of the approved bid scope of work requires Regional Office approval using either of the two following mechanisms in order to be eligible for reimbursement:

1. When the number of units of an approved bid scope of work increases, yet the unit costs (as specified in the successful bid) do not change, additional bidding for the Change Order units may not be required. For the additional units, complete a Bid Summary Form by assigning a new scope of work, scope of work number, and filling in the Change Order block. Submit the Bid Summary Form to the Regional Office for approval. This additional work does not have to be bid if the Regional Office approves the additional units. See Appendix N for detailed instructions on completing the Bid Summary Form.

2. When unit prices for a previously approved scope of work will be different than those submitted on the original bid, or when a unit price was not included in the original bid, a new scope of work and scope of work number must be assigned. Work for these Change Orders must be bid using the bidding requirements of this section.

Example 4-2. Bidding Additional Work
Example: Bids which contained unit rates were obtained for excavating 300 tons of soil. After initiating work on site, it was determined that an additional 90 tons of soil should be excavated. A Bid Summary Form indicating the scope of work, the additional proposed number of units, and that this as a change order was submitted to the Regional Office. The Regional Office believed that the additional work was necessary, approved the scope of work, and returned a copy of the approved Bid Summary Form. Does the RP/primary consultant need to obtain bids for the additional soil to be excavated? Answer. The RP/Primary Consultant does not need to obtain bids for the additional work. The original bid contained unit rates for soil excavation and these unit rates can be used for the additional work needed at the site.

4.6.8 Mark-up

Mark-up on costs that are billed directly to the responsible person is not eligible for reimbursement. Only costs for subcontracted services, equipment, and materials obtained through an approved bid and billed to the responsible person by the primary consultant, are eligible for mark-up of up to 10%.

5.0 RELEASE RESPONSE AND CORRECTIVE ACTION

Release response and corrective action comprises a set of procedures for managing releases of regulated substances and petroleum from the time of the release to the time when no further action is needed to address the release. The goal of these procedures is to ensure that all actions needed to protect human health and the environment are taken following a release of regulated substance. These procedures include guidelines for the initial response and abatement of hazards associated with a release, the characterization of the release (including risk assessment), and the remediation of the release.

Many of the procedures and reports contained within this Chapter are derived from Part VI of 9 VAC 25-580-10 et seq. and are required for releases from regulated, deferred, and partially deferred USTs. These procedures are applicable to releases from tanks not regulated by the UST Technical Regulation and regional staff may use these procedures to evaluate releases from exempt and excluded USTs and ASTs.

The DEQ also has developed procedures for characterizing discharges of oil from heating oil tanks having a capacity of 1000 gallons or less. For additional information about procedures for characterizing discharges from small heating oil tanks, please see section 5.4.4.

5.1 INITIAL RESPONSE

Upon confirming that a release of petroleum from an UST has occurred, the responsible person is required to report that release to DEQ within 24 hours (9 VAC 25-580-240). For discharges of oil not subject to the requirements of Article 9, Article 11 states that any person causing or permitting a discharge of oil into or upon state waters, lands or storm drains within the Commonwealth shall immediately notify DEQ, the appropriate Federal authorities, and local emergency coordinators. Additional initial response activities include taking action to prevent the further release of petroleum into the environment and identifying and mitigating fire, explosion, and vapor hazards.

5.2 CONFIRMED RELEASES WITH DEQ DETERMINATION OF NO FURTHER ACTION

Tank owners and/or operators having confirmed releases from a tank are required to characterize the release, determine the extent of contamination, risks posed by the contamination, and the corrective actions needed to address those risks. The DEQ uses this information to determine the actions that are needed to protect human health and the environment following a release.

The DEQ will, in most instances, require the RP to characterize a site following a release at that site. Staff, however, have the authority to determine that no further action is necessary at a site without requiring additional site characterization if, in their professional judgment, they have enough information to determine that no further action is warranted. When staff believe that no further action is warranted without requiring site characterization, staff will document via a memorandum, phone log, or letter to the site file their justification for closing the case without requiring site characterization. This document should describe known site conditions and state the following:

1. the source of contamination has been stopped;

2. the contamination does not pose a risk to known receptors;

3. no free product exists at the site; and

4. no petroleum saturated soils are present at the site.

The default position of the DEQ Storage Tank Program is the RP must characterize the site following a release of product (or discharge of oil) from a storage tank and submit a Site Characterization Report describing the severity and extent of contamination at the site, risks to receptors, and recommended corrective actions. Given the migration and toxicity characteristics of gasoline, RPs will almost always be required to provide a Site Characterization Report in accordance with Part VI of the UST Technical Regulation following a gasoline release.

NOTES: 1. A PC number must be issued for all confirmed releases.

2. **The default position of the DEQ Storage Tank Program is the RP must characterize the site following a release of product from a storage tank**. The DEQ Storage Tank Program will only issue a no further action determination prior to Site Characterization if the Case Manager is certain that enough information exists to characterize the site and determine that the release poses no significant threat to human health and the environment.

Example 5-1. Confirmed Release – DEQ determination of No Further Action Area served by a municipal water system with NO nearby wells including municipal water supply wells
A leak from a 250 gallon home heating oil UST was reported to the DEQ. One soil boring was advanced adjacent to the UST to a depth of 6 feet. A soil sample was collected from the boring at six feet and PID readings were used to determine the location from which to collect the sample from this boring. The TPH concentration in the sample collected from this boring was approximately 800 mg/kg. The site is in a residential area and is served by municipal water. There is no surficial contamination at the site and there are no surface water bodies within one-quarter of a mile from the site. Recommended Action: Confirmed release – DEQ determination of No Further Action Based upon the site and receptor information, the Case Manager may determine that the release does not pose a risk to known receptors and no further action is warranted. The Case Manager may close the case with appropriate documentation in the case file.

Example 5-2. Confirmed Release – Site Characterization Required
A leak from a 250 gallon home heating oil UST was reported to DEQ. One soil boring was advanced adjacent to the UST. The TPH concentration in the sample was reported to be 800 mg/kg. It is unclear how this sample was collected and the sample may be a composite sample. The site is in a residential area that is served by municipal water. There are no nearby surface water bodies and no obvious receptors. Recommended Action: Confirmed Release – Site Characterization Required The sample collection information is not sufficient for staff to make a determination that further characterization by the RP is unnecessary

Example 5-3. Confirmed Release – DEQ determination of No Further Action
A farm tank that contained diesel was removed from a farm as a condition of property sale. During removal, corrosion holes were observed in the tank. TPH concentrations in the two soil samples collected from the bottom of the excavation were approximately 700 mg/kg. The farm is served by a shallow well, however, the well is located approximately 350 feet from the tank bed and is believed to be upgradient due to site topography. There are no other apparent receptors at the site. Recommended Action: Confirmed Release – DEQ determination of No Further Action Although the well is a receptor, staff believe that impact to this well is highly unlikely due to its location (i.e. staff believe that contamination does not pose a risk to the receptor). Based upon this receptor determination, and site information, the case may be closed with staff documentation without requiring additional characterization by the RP.

Example 5-4. Confirmed Release – Site Characterization Required
A service station selling gasoline is located in an urbanized, residential area that is served by municipal water. The gasoline USTs are removed from the site and the TPH concentration in soil samples collected from the bottom of the excavation range from 75 to 350 mg/kg. The TPH concentration in a composite sample collected from the excavated material was 850 mg/kg. Recommended Action: Confirmed Release – Site Characterization Required While risks to water supplies are not a concern at the site, risks may be posed by vapors in structures (buildings and storm sewers) and these risks need to be evaluated. There is also a need to determine if free product is present. The site should go through the release response and corrective action process.

Example 5-5. Confirmed Release – Site Characterization Required
A home heating oil UST was removed from the ground. The UST was in poor condition and contained numerous corrosion holes. Stained soil was observed in the bottom of the excavation. The TPH concentration in a sample collected from the bottom of the excavation was 150 mg/kg. The site is in a residential area that is served by municipal water, however, a stream is located approximately 80 feet from the tank pit. Recommended Action: Confirmed Release – Site Characterization Required The stream is a potential receptor and contamination has not been delineated. The site should be further characterized and risks to the stream should be evaluated.

Example 5-6. Confirmed Release – Site Characterization Required
A gasoline UST was closed by removal from the ground. A composite soil sample of material excavated from the tank pit had a TPH concentration of 10,000 mg/kg. Soil samples collected from the bottom of the tank pit had TPH concentration of less than 100 mg/kg. The site is in an urban area and is served by municipal water. Recommended Action: Confirmed Release – Site Characterization Required Due to the migration and toxicity characteristics of gasoline, the RP should be required to characterize the site to determine the extent of contamination, if free product is present at the site, and the risks posed by the release.

5.3 INITIAL ABATEMENT

5.3.1 Actions to Abate Immediate Hazards

Actions taken to abate immediate hazards (fire/safety or environmental emergency) must be undertaken by the responsible person regardless of whether those actions have been pre-approved by the regional staff. Regional Office staff will post-approve work that was necessary to abate a hazard. If the regional staff believe the work performed was excessive or unnecessary, they may require the owner or operator to justify the actions taken before post-approving that work. Regardless of whether the work was necessary, the release must be reported to DEQ within 24 hours of confirmation in order for that work to be considered for reimbursement. Work performed more than 24 hours before the release is reported will not be considered for reimbursement.

Tank closure is not an Initial Abatement activity and is not eligible for reimbursement. DEQ, however, recognizes that the highest level of soil contamination at leaking UST sites is frequently found in soil excavated from the tank pit. Soil in the tank pit area often contains a significant percentage of the total mass of contaminants at a site and should be properly disposed as part of Initial Abatement. Although removal and excavation of tanks are not eligible for reimbursement, the Regional Office should approve the loading, hauling, and disposal of the contaminated soil that was removed along with the tank. Costs to backfill the tank pit also should be approved. The quantity of contaminated soil that will be approved for reimbursement can be computed by using Table 7-1. Table 7-1 lists the maximum quantity of soil that is eligible for reimbursement for a given UST capacity. The total amount eligible for reimbursement is determined by the "Maximum Soil Removal" amount for each tank removed.

When contaminated soil poses a fire/safety hazard or environmental emergency, the Regional Office staff may approve excavation of additional quantities of soil (beyond that necessary to excavate the tank(s) as defined in Table 7-1) and additional loading, hauling, disposal, and backfill of soil to address the emergency.

To be eligible for reimbursement, all *non*-emergency initial abatement measures must be approved by the Regional Office staff before work is begun. The owner or operator must submit an Activity Authorization Form listing the tasks that must completed to abate hazards to the Regional Office for approval.

5.3.2 Actions to Abate Hazards from Impacted Water Supplies

Petroleum contaminated drinking water supplies represent instances of known receptor impact and must receive the highest level of priority and attention by staff. The DEQ may provide an Alternate Water Supply (AWS) whenever petroleum constituents or gasoline additives (e.g. MTBE) are detected in water supply wells. The DEQ will, as a general practice, provide an AWS when private wells are impacted by petroleum and petroleum constituents are the primary contaminants of concern.

Public water supplies are regulated by the Virginia Health Department and operators of these water supply systems are required to test for contaminants (including petroleum constituents) on a routine basis. The DEQ will, as a general practice, provide an AWS or assistance to the operator of a public water supply well when the following criteria are met: (1) the well is contaminated with petroleum constituents (including petroleum additives); (2) the concentration of one or more of the petroleum constituents exceeds the Virginia Health Department's standards for public water[5-1]; and (3) the petroleum constituents are the primary constituents of concern.

NOTE: The DEQ Storage Tank Program may not provide alternate water supplies when wells are impacted by both petroleum and other constituents (e.g. chlorinated solvents) and those other constituents of concern are: (1) present in greater concentrations than the petroleum constituents or (2) deemed by the Virginia Health Department to pose a greater risk to persons utilizing the water supply.

The provision of an alternate water supply is a type of corrective action and should, in most instances, go through the corrective action plan process. It is also important that alternate water supplies be provided to the impacted parties as expeditiously as possible. Staff are encouraged to use the Interim Authorization process in order to minimize delays in the provision of an alternate water source.

Cases involving the provision of an alternate water supply represent instances of documented receptor impact. Staff should, therefore, require a CAP and public notice for all cases involving the provision of alternate water supplies unless the responsible person contaminated his/her own water supply and the release is not expected to impact other receptors. If corrective actions other than the provision of an alternate water supply are not needed, the CAP may consist of a summary of the alternate water supply that has already been provided and any operation and monitoring schedules for that system (if applicable). The 198 UCRs provide a task for report writing (T100) and this limited CAP should be approved on a per hour basis. If the CAP preparation phase is performed under the 395 UCRs, staff may authorize work for the abbreviated CAP on a time and materials basis rather than using the task code in the UCRs for a standard CAP. See Section 5.7 for additional information regarding Corrective Action Plan procedures.

[5-1] The Virginia Health Department has established a health advisory of 20 ug/l for MTBE. Additional questions about Virginia Drinking Water Standards should be directed to Virginia Dept. of Health, Office of Water Programs (804) 786-1758.

5.3.2.1 AWS Procedures When the Responsible Person is Known

The DEQ Storage Tank Program will provide alternate water supplies when: (1) petroleum constituents are present in a private drinking water supply; or (2) petroleum constituents in excess of the Virginia Health Department standards are found in a public water system. When water supplies are impacted or potentially impacted and there is a known responsible person, regional staff must:

1. Notify the RP of their responsibility to provide potable water as part of their corrective action requirements under 9 VAC 25-580-10 et seq., or Article 11 of State Water Control Law. Any alternate water supply (AWS) corrective action by the RP must be pre-approved by the DEQ. Alternate water supplies for community and/or public water systems also must be approved by the Virginia Health Department and, in most cases, must be certified by registered professional engineer.

2. Ensure that the RP provides immediate relief to the impacted persons by supplying bottled water to the affected residence. If the RP cannot or will not provide bottled water, the DEQ will provide bottled water. The State Lead contractor may be utilized to provide bottled water to the impacted persons.

3. Direct the RP to collect samples at locations where regional staff believe that water supplies may be contaminated by the release. Staff have the authority to direct the RP to collect samples regardless of whether complaints of contaminated water have been received. The types of analyses to be performed on samples collected from water supplies will be based on the type(s) of products released and whether the ground water in the area has been characterized. Table 5-1 provides guidance regarding the types of analyses that should be performed for different potential sources.

   NOTE: Staff, at their discretion, may split samples with the RP. For more information on splitting samples, please see Section 5.3.2.2.1

4. If an AWS is needed, DEQ staff will direct the RP to develop a plan for the long-term provision of an AWS. This plan must be submitted to the Regional Office for concurrence. If the approved AWS Plan involves the installation of a new well or connection to an existing public water supply system (connection to an existing water main), these actions should be initiated by the RP as soon as possible under the CAP Implementation Phase (Interim Authorization may be used).

5. If the approved AWS Plan involves a public water supply extension (i.e. extension of a water main) or the development of a community well field and/or treatment system the Regional Office will advise the Central Office AWS staff of the selected water supply alternative. Central Office Staff will then coordinate the development and implementation of the appropriate AWS.

NOTES: AWS projects involving the installation of well fields and/or water treatment systems that will be operated by public service authorities will be coordinated by Central Office Staff. Connections to existing water mains are not considered public water supply extensions and must be initiated by the RP.

Table 5-1. Decision Matrix for Water Supply Samples Collected by Responsible Persons

Contaminant Source	Ground Water Characterized?[1]	Analyses	Recommended Methods[2]
Gasoline	Yes	BTEX and MTBE	8021B
	No	Volatile organics (including MTBE)	8260B
Petroleum products other than gasoline	Yes	BTEX and MTBE	8021B
		Semivolatile organics	8270C
	No	Volatile organics (including MTBE)	8260B
		Semivolatile organics	8270C
Gasoline + other petroleum products	Yes	BTEX and MTBE	8021B
		Semivolatile organics	8270C
	No	Volatile organics (including MTBE)	8260B
		Semivolatile organics	8270C

[1] The DEQ Case Manager determines if the ground water at the site is sufficiently characterized to determine the potential contaminants in local water supply wells. If the Case Manager believes that the local ground water has been sufficiently characterized, he/she may direct the RP to analyze water samples for BTEX and MTBE by 8021B. If the Case Manager believes that ground water has not been sufficiently characterized or that contaminants other than petroleum constituents may be present in the water supply well, the Case Manager should direct the RP to run a complete volatile scan on the samples by method 8260 B.

[2] The SW-846 methods are listed as the recommended methods. Staff may allow the use of other analytical methods as deemed appropriate.

At all sites where the DEQ has decided that the appropriate immediate AWS corrective action is to install carbon filtration units (CFUs) on the existing water supply system, the DEQ will:

1. Advise the RP, in writing, that the DEQ will undertake the CFU installation and Operations and Maintenance (O&M) of same.

2. Advise the RP, in writing, that all costs incurred by the DEQ in providing the CFU and O&M will be applied towards the RP's dollar limit of corrective action costs from VPSTF. That is, the costs incurred by DEQ for providing the CFU/O&M and the RP's corrective action costs will be added together in determining the million dollar limit on the amount of funds that may be used from the VPSTF in performing corrective action at the site.

3. Advise the RP, in writing, that if the other (non AWS) corrective action costs total less than the RP's limit of financial responsibility, the DEQ will cost recover from the RP up to the financial limit amount. (Staff will probably address items 1-3 in the same letter).

4. Contact the Central Office AWS staff and provide to them any information requested so that they may dispatch the CFU contractor to the site.

NOTE: This is a significant departure from previous procedures which mandated that the Regional Offices require the RP, if financially capable, to provide the CFU if that was the agreed upon remedy. The rationale for this change is that the DEQ can promote system consistency and reliability and can effect cost savings by utilizing the CFU provider that is under state contract. Since monies spent by the RP in providing a CFU are eligible for reimbursement, having the DEQ contractor install and maintain the system avoids paying unnecessary administrative costs for reimbursement claim processing. More importantly, the DEQ is assured that citizens are not exposed to contaminated drinking water as we have total control over the system and its maintenance.

5.3.2.2 Alternate Water Supply Procedures when the Responsible Person is Unknown

At sites where an impacted water supply is reported and the RP is unknown, DEQ will investigate the report and determine if the water supply is contaminated. Staff will usually collect water samples from the water supply and submit the samples to DCLS for analysis (please see sections 5.3.2.2.1 and 5.3.2.2.2 for additional information on sample collection and analysis). If a water supply is contaminated, the following guidelines should be used:

1. The Regional Office should provide bottled water to the impacted persons. The State Lead contractor may be utilized to provide bottled water to the impacted persons. Bottled water will generally be used for individual residences as opposed to community water systems or public water supplies.

2. The Case Manager should contact the Central Office AWS Program Manager and provide to that person any information requested so that they may dispatch the CFU contractor to the affected site(s).

3. The Regional Office will direct the State Lead Contractor to develop an AWS workplan. The CFUs installed by DEQ's CFU contractor will remain at the impacted site(s) until a permanent, long term AWS solution is implemented or the CFUs become the long term solution.

4. When the AWS to be provided is either a new well or connection to an available public water supply system, regional staff should utilize the State Lead Contractor to complete the approved corrective action.

5. When the selected, long term (permanent) AWS is the extension of an existing public water supply system or the development of a community water supply system, the Regional Office shall advise the Central Office AWS staff of the selected water supply alternative. Central Office staff will then coordinate the development and implementation of the selected alternative.

5.3.2.2.1 Collection of Water Samples from Potentially Impacted Water Supply Wells

The collection of water samples from impacted or potentially impacted water supply wells is a task that must be performed by regional staff when a responsible person is unknown or a potentially responsible person is unwilling to collect the samples. Regional staff may, at their discretion, also split samples with responsible persons. The objective of splitting samples is to increase confidence in the precision of the analytical data. Regional staff are especially encouraged to split samples when they are unsure whether a well has been impacted.

While staff may periodically encounter wells that are obviously contaminated, many instances of contamination will involve contaminant concentrations that are within one order of magnitude of the detection limits for those constituents. Obtaining samples from the water supply well that represent actual conditions within that well is a critical first step to protecting impacted receptors. The sampling protocol listed below should be used by regional staff when collecting samples from potentially impacted water supply wells.

1. Before visiting a site, staff should determine if the impacted/potentially impacted water supply may contain chlorine. If the water supply is or has been chlorinated, ascorbic acid should be added to the 40 ml vials.

2. When sampling a water supply well, staff should collect the sample from a point as close to the pressure tank as possible. Most pressure tanks have a drain valve on or in very close proximity to the tank. This is generally the most optimal location from which to sample water from the well. Staff should be aware that, in most cases, a garden hose will have to be connected to this drain in order to prevent flooding of the space where the pressure tank is located. If it is not practical to collect samples from the vicinity of the pressure tank, samples should be collected from the outside spigot or inside faucet closest to the pressure tank. IMPORTANT: CHECK FOR ANY HOME FILTER SYSTEMS OR WATER CONDITIONING EQUIPMENT! Samples must be collected prior to any filters or conditioning equipment.

3. Whenever possible, staff should purge the system for approximately ten (10) minutes prior to collecting water samples. Water samples should not be collected until cool water at a stable temperature is leaving the system. This stable, cool temperature indicates that water is being drawn from the aquifer/casing storage and not the pressure tank or piping.

4. If sampling from an indoor faucet, it is imperative to remove any aerator from the faucet before collecting a sample. Passing water that contains volatile organic compounds (VOCs) through an aerator will result in the loss of some of the volatile compounds. Aerators also may be primary sources of microbial activity within the system. Microbial activity may compromise or bias sample quality.

5. Staff must consider temporal factors when collecting samples from a potentially impacted water supply. If the reported water supply problem is intermittent (e.g. fuel-like odors sometimes emanate from the water supply), staff should, to the extent possible, work with the impacted party to ensure that samples are collected at a time when the problem is present.

6. When samples will be analyzed for VOCs, staff must be careful to prevent the formation of air bubbles in the sample vial. Air bubbles may allow a portion of the dissolved VOCs to partition into the air causing an erroneously low dissolved-phase VOC concentration. This can make a difference when dealing with the low hydrocarbon concentrations typically observed in water supply samples.

7. When filling sample vials for VOC analyses, the vials should be filled slowly and not allowed to overflow so as not to lose volatiles and/or a sufficient level of sample acidification. Vials should be filled until there is a positive meniscus of liquid above the vial. The vial should then be capped and subsequently, inverted to check for air bubbles in the sample. If air bubbles are observed, staff should collect another sample.

8. Staff must take precautions to prevent cross contamination of samples. Clean, unpowdered latex gloves should be worn when collecting samples and care must be taken to prevent contact between the sample and the gloves. Sample containers should not be stored in close proximity to contaminant sources (e.g. fuel containers).

9. Upon collection, all samples must be labeled and evidence tape with the sampler's initials must be used to seal the container so that attempts to tamper with the sample would be obvious. The sample container should then be placed in a cooler on ice. Be sure to separate the sample containers from the ice (e.g. place the samples in plastic bags) and wrap or otherwise protect the sample containers to reduce the possibility of sample container breakage during transport.

10. Record the following information about the sample in the field notebook:
    A. sample location
    B. station ID (must match the station ID listed on the lab tag and lag sheet)
    C. date and time collected
    D. preservation method (if any)
    E. person collecting sample
    F. other observations as deemed important by the sampler .

    NOTE: All notes in the field notebook should be recorded in indelible ink.

11. Between the time that the samples are collected and the time that they are sent to the lab, samples should either remain under the custody of the sample collector or be placed in a locked cooler or locked vehicle to prevent tampering. When samples are ready for shipment to DCLS, locks and custody seals provided DCLS should be used to secure the cooler (see DEQ Guidance Memo No. 00-2016 for the DEQ Chain of Custody policy and procedure).

12. Fill out a DCLS lab sheet for each sample collected. Instructions for completing a DCLS lab sheet are included in Appendix V. It is recommended that staff record pertinent notes on the lab sheet such as "water smells like sewage," " "possible sources of contamination include kerosene and #2 fuel oil," etc.

13. Enter the sample collection data in the Comprehensive Environmental Data System (CEDS). Staff should see the CEDS Version 2 Water Monitoring Manual for further instructions on using CEDS. Use CEDS to prepare a chain-of custody form for the samples and print two copies of the chain-of custody form.

14. Place a lab sheet for each sample container and the chain-of-custody form in a watertight plastic bag and affix the plastic bag to the inside of the cooler lid. Place a second copy of the chain-of-custody form on the outside of the container so that persons receiving the samples at the lab will know where to direct the samples.

15. If the sample will be sent to the lab via a commercial carrier, record the waybill number in the field book.

5.3.2.2.2 Analysis of Samples from Potentially Impacted Water Supplies

The decision regarding which analyses to use for potentially impacted water supplies should be based on site specific information including probable/possible contaminant sources in the area and physical characteristics of the water (e.g. strong gasoline odor). DEQ staff have, on numerous occasions, observed organic type vapors emanating from a water supply, yet subsequent analyses indicated that BTEX and MTBE were below the detection limits for those constituents. The DEQ also has observed MTBE and other volatile organics in water supplies in areas where there were no known sources or where the source

was a product other than gasoline. In the interest of reducing the number of sampling visits to a site, staff are encouraged to analyze all water samples for volatile organics (including MTBE) regardless of the suspected source(s). In addition, samples should be analyzed for semivolatile organics when staff strongly suspect that a petroleum product other than gasoline has contaminated a well or when the suspected contaminants are unknown or potentially from multiple sources (e.g. petroleum storage tanks and manufacturing facilities).

NOTE: In lieu of a complete volatile scan, samples from a water supply may be analyzed for BTEX and MTBE if staff believe that ground water in the vicinity of the water supply well has been adequately characterized regarding the types of contaminants in the area.

The analysis of samples collected by DEQ staff will usually be performed by personnel from the Division of Consolidated Laboratories (DCLS; Virginia Department of General Services). Analytical methods used by DCLS to quantify petroleum constituents, volatile organics, and semivolatile organics are EPA or other widely used procedures (e.g. California LUFT method for TPH). Table 5-2 lists and describes the DCLS water analysis methods that will most commonly be requested by the DEQ Storage Tank Program staff. Samples collected by staff from impacted or potentially impacted water supply wells will almost always be analyzed for volatile organics (including MTBE), semi-volatile organics, or BTEX/MTBE. A sample matrix listed in Table 5-3 indicates the analyses that staff should request when samples will be sent to DCLS. Please note that duplicate samples from each sampling point must be sent to DCLS.

5.3.2.2.3 Quality Control

When DEQ staff collect water samples from a water supply system, the primary objective is to determine if the water system is contaminated. Contamination may, in come instances, be obvious and samples are analyzed to confirm the type(s) of contaminants present and provide information for the preliminary design of an alternate water supply. Most of the time, however, impacted water supplies are reported to DEQ when a constituent becomes detectable via a faint taste or smell and the contaminant concentration in water is less than 100 ppb. In order to determine if contaminants in a sample may have been introduced during the sample collection process, staff should collect at least one field blank per day. Field blanks are prepared by placing deionized water into appropriate sample containers at one of the sampling locations. Once collected, field blanks must be placed in the sample cooler and sent with the other samples to the lab.

Trip blanks may be collected at the discretion of the Case Manager to determine if sample transport procedures are introducing contaminants and if cross contamination in the form of VOC migration has occurred between the collected samples. Trip blanks must be prepared prior to visiting the site by placing deionized water along with the required preservative(s) in the appropriate containers. Once prepared, trip blanks are taken into the field, placed in the sample cooler along with any samples collected, and sent with the other samples to the lab. If trip blanks are used, only one blank per day is needed.

Table 5-2. Description of DCLS Analytical Methods for Petroleum, Volatile Organics, and Semivolatile Organics in Water

DCLS Analytical Method	Method Description
BTEX	A GC/MS method most like EPA 524.2. This method may also be used to identify and quantify MTBE.
VOCW	Volatile organic compounds in water. A GC/MS method most like EPA 524.
SVBW	Semi-volatile organics (base neutral extraction) in water. A GC/MS method most like EPA 625.
SVW	Semi-volatile organics (base neutral and acid extraction) in water. A GC/MS method most like EPA 8270. This method is the same as SVBW and the acid extraction picks up phenolic compounds
PIDW	A modified California LUFT Method that uses FID with pentane extraction. Quantitation is for Gasoline Range Only. Diesel range is qualitative only. Detection limits: gasoline range - 100 mg/l
LFW	Light fuels in water. A TPH method for gasoline range constituents in water. Detection limit is 100 ug/l
MRFW	Mid-range fuels in water. A TPH method for diesel and kerosene in water. Detection limit is 400 ug/l.

Table 5-3 Water Supply Sample Matrix for Samples to be Analyzed by DCLS

Fuel released (contaminant source)	DCLS Method to Use	Container Required	Preservation/ Storage	Limits of Quantitation
Gasoline (local g.w. contaminants already characterized)	BTEX (incl. MTBE)	2 x 40 ml vials	Preserve w. HCL to <= pH 2 and store at 4ºC (add 25 mg of ascorbic acid if chlorine is expected)	1.0 ug/l (5.0 ug/l for MTBE)
Gasoline (local g.w. not characterized)	VOCW (incl. MTBE)	2 x 40 ml vials	Preserve w. HCL to <= pH 2 and store at 4ºC (add 25 mg of ascorbic acid if chlorine is expected)	1.0 ug/l (5.0 ug/l for MTBE)
Kerosene, jet fuels, diesel, fuel oils, petroleum products other than gasoline (local g.w. already characterized)	SVBW	2 x amber liter bottles	Store at 4ºC Use sodium thiosulfate as a dechlorinating agent if chlorine is expected	5.0 ug/l
	BTEX (incl. MTBE)	2 x 40 ml vials	Preserve w. HCL to <= pH 2 and store at 4ºC (add 25 mg of ascorbic acid if chlorine is expected)	1.0 ug/l (5.0 ug/l for MTBE)
Kerosene, jet fuels, diesel, fuel oils, petroleum products other than gasoline (local g.w. not characterized)	SVBW	2 x amber liter bottles	Store at 4ºC Use sodium thiosulfate as a dechlorinating agent if chlorine is expected	5.0 ug/l
	VOCW (incl. MTBE)	2 x 40 ml vials	Preserve w. HCL to <= pH 2 and store at 4ºC (add 25 mg of ascorbic acid if chlorine is expected)	1.0 ug/l (5.0 ug/l for MTBE)
Unknown	VOCW (incl. MTBE)	2 x 40 ml vials	Preserve w. HCL to <= pH 2 and store at 4ºC (add 25 mg of ascorbic acid if chlorine is expected)	1.0 ug/l (5.0 ug/l for MTBE)
	SVW	2 x amber liter bottles	Store at 4ºC Use sodium thiosulfate as a dechlorinating agent if chlorine is expected	5.0 ug/l

NOTE: At most sites, staff will request that DCLS perform a complete volatile scan (including MTBE). Staff will only request the BTEX method (with MTBE) when ground water in the vicinity of the well has been characterized with respect to the potential contaminants in the area.

5.3.3 Initial Abatement Report

Section 250 of the UST Technical Regulation requires the tank owner or operator to perform Initial Abatement Measures unless otherwise indicated by DEQ. Initial Abatement Reports must describe the actions taken under Section 250.A of the UST Technical Regulation. The objective of the Initial Abatement Report is to inform the Regional Office of the actions taken to: (1) mitigate hazards associated with a petroleum release; and (2) prevent the further release of petroleum. When the Regional Office requires the submission of an Initial Abatement Report, the tank owner or operator will usually be required to submit the report within 20 days after confirming the release. Regional staff may, however, establish an alternative period for submitting the report and may also grant extensions for the submission of an Initial Abatement Report.

If the regional Case Manager believes that no actions are required under Section 250.A of the UST Technical Regulation, the Case Manager does not need to require the submission of a stand alone Initial Abatement Report. In this type of situation, the Case Manager may direct the responsible person to include a discussion of Initial Abatement Measures in the Site Characterization Report.

A list of elements that usually need to be addressed in the Initial Abatement Report is contained in Appendix C. This list is intended to inform owners/operators of the types of information which Regional Staff usually need to ensure that appropriate actions have been taken to mitigate hazards at a site.

Regional staff may, at their discretion, require the owner or operator to address issues not mentioned in this list if site conditions warrant the additional information.

DEQ staff have the authority under Article 9 of State Water Control Law to require owners or operators of excluded USTs to take corrective actions following releases from these tanks. DEQ believes that this authority allows staff to require the submission of reports following releases from these tanks. Reports are considered a necessary means of documenting that a release has been addressed.

Article 11 of Virginia Water Control Law is a broad statute that provides DEQ with the authority to require persons to clean up discharges of oil from sources other than regulated USTs. DEQ believes that Article 11 provides staff with the ability to require operators of ASTs or exempt USTs to submit reports as a means of documenting that a discharge has been addressed. Regional staff may, therefore, require Initial Abatement Reports for discharges of oil from exempt USTs or ASTs if site conditions warrant this activity.

5.4 SITE CHARACTERIZATION

5.4.1 Background and Goals

Site characterization consists of activities performed to assess site and contamination conditions, risks posed by the release, and remedial options for cleaning up the release. Section 260 of the UST Technical Regulation requires that the owner or operator of a regulated, deferred, or partially deferred UST assemble information about the site and the nature of the release. The objective of site characterization is to obtain

all information that is needed to make an appropriate and informed decision regarding the actions necessary to protect human health and the environment from the released materials.

Activities performed for characterizing releases from VPSTF eligible tanks are reimbursable as long as those activities are authorized by the regional staff. Prior to initiating site characterization activities, the responsible person and his/her consultant must fill out an Activity Authorization Form and send this form to the Regional Office. Regional staff shall review the form and approve, disapprove, or modify the proposed activities and units. The owner or operator should commence with Site Characterization activities upon receipt of the approved AAF from the Regional Office.

5.4.2 Work Performed on VDOT Property

In order to characterize or clean up a release, responsible persons and their consultants may need to install monitoring wells or perform other work on Virginia Department of Transportation (VDOT) properties or rights-of-way. VDOT may require persons performing work on VDOT property to have a Land Use Permit for that activity. Regional Case Managers should remind responsible persons and consultants to check with VDOT about the need for a Land Use Permit when: (1) site characterization or remedial activities are proposed for VDOT properties or rights-of-way; or (2) petroleum contaminated water may be discharged into a dry ditch on a VDOT property or right of way. **Case Managers do not need to wait for VDOT to issue Land Use Permits prior to approving activities on the AAF.**

5.4.3 Site Characterization Report Requirements

Section 260 of the UST Technical Regulation requires that a Site Characterization Report (SCR) be submitted to DEQ following a release from a regulated, deferred, or partially deferred UST. The SCR must be received by the Regional Office within 45 days following the release or within an alternative schedule as established by the Regional Office. Upon completion of Initial Abatement activities, the responsible person shall prepare an AAF for work needed to characterize the site. The regional Case Manager, at his/her discretion, also may direct the responsible person to develop a narrative workplan describing proposed activities. The workplan (if required by the Case Manager) along with an Activity Authorization Form shall be submitted to the Regional Office and the regional Case Manager shall approve, disapprove, or modify the proposed tasks and units. The Case Manager shall then send a copy of the signed AAF back to the owner or operator and the owner or operator shall initiate Site Characterization.

A SCR consists of three main components; a site assessment, a risk assessment, and a remediation assessment. Each of these components is needed in order to determine the future course of action at a site. A list of elements that often need to be addressed in the SCR is included as Appendix C. Regional staff have the authority to determine what issues the owner or operator must address to characterize a site.

NOTE: The Boilerplate Report Forms listed in the 1995 DEQ Petroleum Program Manual have been deleted and their use should be discontinued.

5.4.3.1 Site Assessment

The site assessment portion of the SCR deals with evaluating site and contamination conditions. Major components of the site assessment include evaluating the nature, extent and quantity of the release, characterizing the geologic and hydrologic conditions at the site, and determining current and future land and water uses at and near the site. Data collection is a critical part of site assessment. The data derived must subsequently be used to support risk and remediation assessments.

5.4.3.1.1 Methyl Tertiary Butyl Ether (MTBE)

Methyl tertiary butyl ether (MTBE) is an oxygenate that is added to gasoline to reduce emissions from vehicles that run on gasoline. MTBE as a ground water contaminant tends to migrate farther from the source and at a faster rate than do other gasoline constituents. DEQ also has observed MTBE contamination in ground water near heating oil and diesel releases. Given the migration tendencies of this constituent, ground water at all gasoline release sites should be characterized for MTBE as well as the BTEX constituents. As with other constituents, the DEQ Case Manager will decide upon the number of samples that must be analyzed for MTBE in order to adequately characterize the site. Case Managers may base the number of samples and characterization needed on the potential receptors and degree of risk at the site. Depending upon site conditions and potential risks, staff also may direct tank owners/operators to analyze ground water at non-gasoline release sites for MTBE. Staff may, at their discretion, direct tank owners/operators to analyze soils at a release site for MTBE.

NOTE: All initial samples collected for potentially impacted water supply wells will be analyzed for MTBE.

5.4.3.1.2 Analytical Methods

The analyses of samples are usually an integral component of the Site Characterization process. Section 260.A.2.a of the UST Technical Regulation states: "Samples collected for this site characterization shall be tested according to established EPA analytical methods or methods approved by the board." The sample analyses to be used during site characterization should, to the extent possible, be agreed upon by the owner or operator, consultant, and the regional Case Manager as part of the Activity Authorization process. When choosing the types of analyses to be performed during site characterization, all parties in the decision making process should consider how the information will be used in the site, risk, and/or remediation assessments and the decisions that must be supported by the data.

DEQ is often asked by the regulated and consulting communities what analyses are acceptable. Table 5-4 lists some of the methods that are commonly used for analyzing petroleum constituents. The methods listed in Table 5-4 are either EPA methods or methods developed by other states and are considered "approved" by DEQ provided that they are applied appropriately (e.g. a BTEX analysis may not be very applicable to the investigation of contamination resulting from a release of #6 fuel oil). Analytical methods not listed in Table 5-4 may be used with the concurrence of the regional Case Manager.

The types of analyses listed in Table 5-4 are quantitative and performed within a laboratory setting. Semi-

quantitative techniques may be used in situations where deemed appropriate by the regional Case Manager. The analysis of total volatiles with a portable flame ionization detector or photoionization detector is a type of semi-quantitative tool that is widely used and accepted within its limitations.

More recently, immunoassay tests and spectrometric tests have also been used to evaluate petroleum contamination on a real time basis. These tests are also considered to be acceptable investigative methods when they are used in a manner that is within their limitations. When evaluating the potential applicability of immunoassay or spectrometric tests, it is recommended that the owner or operator, consultant, and Case Manager consider how the test results will be used, the detection limits, and the detection range (many of these methods have both upper and lower detection limits).

On June 13, 1997, EPA amended its hazardous waste regulations for testing and monitoring. This amendment added new and revised analytical methods as Update III to the Third Edition of the EPA-approved test methods manual "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW-846[5-2]. This amendment deleted 14 packed column gas chromatographic methods and replaced them with capillary column methods or methods that provide better resolution, selectivity, and sensitivity.

The UST Technical Regulation specifies that samples must be analyzed by EPA approved methods or methods approved by the board. Significant requirements of Update III that may impact investigation and remediation activities at storage tank sites include:

1. Method 8020A (BTEX) was deleted and replaced with Method 8021B, Halogenated and Aromatic Volatiles by GC;

2. Method 8240B was deleted and replaced with Method 8260B, Volatile Organic Compounds (VOC) by GC/MS;

3. Method 5030 was modified to exclude its use for low-level (<200 ug/kg VOC) soil samples;

4. Method 5035, Closed System Purge-and-Trap Extraction for Volatile Organics in Soil and Waste Samples, which replaces Method 5030 for low-level soils analysis, requires specific techniques that minimize open-air handling of soil samples. This method is designed to be used in conjunction with determinative methods for volatile organic compounds, 8021B, 8260B, and 8015-GRO.

[5-2] Additional information on Update III to SW846 may be obtained from the June 13, 1997, Federal Register.

Table 5-4. Acceptable Analytical Methods for Use at Petroleum Contaminated Sites

Parameter	Analytical Methods	Applicable Medium[1]	"M code" from the 198 UCR Table
BTEX	EPA 503.1	w	
	EPA 524.1	w	
	EPA 602	w	M0108
	EPA 624	w	M0116
	SW-846 8021B	w & s	M1361
	SW-846 8260B	w & s	M1379
BTEX and MTBE	EPA 602 (modified)	w	M1010
	SW-846 8021B	w	M1371
	SW-846 8021B	s	M1372
TPH Gasoline and JP-4	California LUFT Method	w & s	M0100, M0121
	Wisconsin DNR - GRO	w & s	M1000, M1014
	SW 846 8015b (modified TPH - GRO)	w & s	M1365, 1367
TPH Diesel, Fuel Oil #1 and #2, Jet Fuel[3], Kerosene	California LUFT Method	w & s	M0101, M0122
	Wisconsin DNR - DRO	w & s	M1001, M1015
	SW 846 8015b (modified TPH - DRO)	w & s	M1366, M1368
TPH Crude Oil, Fuel Oil #4, #5, and #6, Used Oil, Hydraulic Oil	EPA 413.1	w	M1008
	EPA 413.2	s	
	EPA 418.1	w & s	M0123
	Wisconsin TRPH	s	
	EPA 1664[2]	w	
PAHs/PNAs	EPA 525	w	
	EPA 610	w	M0110
	EPA 625	w	M0117
	SW-846 8100	w & s	M0143
	SW-846 8270C	w & s	M0149
	SW-846 8310	w & s	
Lead	SW-846 7420/7421	s	M1012

[1] Applicable medium refers to the sample matrix that may be analyzed by the subject test method.
"w" refers to an analytical method that may be used to analyze water
"s" refers to an analytical method that may be used to analyze soil

[2] On May 14, 1999, EPA approved Method 1664 as part of EPA's effort to reduce the use of CFCs and meet the CFC phaseout agreed to in the Montreal Protocol. DEQ Case Managers should be aware of the following limitations of Method 1664 when considering its applicability to a given site:

1. Method 1664 is not applicable to the measurement of materials that volatilize at temperatures below approximately 85 degrees C.
2. Some crude oils and residual fuel oils contain significant percentages of materials that are not soluble in hexane. Accordingly, recoveries of these materials may be low.
3. The detection limit for Method 1664 is in the order of 5 mg/l.

[3] JP-4 is a wide-cut fuel made by blending gasoline and kerosene fractions in a 65 to 35 ratio.

NOTE: Many of the methods listed above for BTEX also may be used for MTBE

References:
EPA 100 - 400 Series – Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, March 1983.
EPA 500 Series – Methods for the Determination of Organic Compounds in Drinking Water, EPA-600/4-88/039, December 1988.
EPA 600 Series – 40 CFR, Part 136, 1992.
EPA SW-846 – Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846). Revision 5, April 1998
Publ. – SW - 140. Modified GRO, Method for Determining Gasoline Range Organics, Wisconsin DNR, September 1995.
Publ. – SW – 141. Modified DRO, Method for Determining Diesel Range Organics, Wisconsin DNR, September 1995.
Publ. – SW – 143. Wisconsin DNR, 1992

In order to improve the quality of data on which decisions are based, the DEQ Storage Tank Program requires the use of current determinative analytical methods 8021B, 8260B, and 8015-GRO where VOC information is needed. When soil samples will be analyzed for VOCs via 8021B, 8260B and/or TPH by one of the gasoline range methods, DEQ strongly encourages the use of EnCore™ or other EPA approved devices or methods to minimize the loss of volatile constituents after sample collection. Under most conditions, soil will be analyzed for high levels (> 200 ug/kg) of VOCs. The decision to use any laboratory analytical methods at a specific site should only be made with the guidance and authorization of the Case Manager.

Samples collected during tank closure must be analyzed by an EPA or DEQ approved analytical method that is capable of determining if a release occurred from that tank. Please see Chapter 7 of this manual for additional information about tank closure procedures.

5.4.3.1.3 Use of Ground Water Models

Modeling is a commonly used and accepted tool for predicting the behavior of ground water flow. Modeling may be used at many sites to determine if a constituent will reach a receptor. In this type of application, the model will effectively evaluate the front edge of the plume. Models may also be used to estimate the maximum contamination that will reach a particular receptor and provide information on contaminant distribution within a plume. When modeling will be utilized to characterize ground water flow and the transport and fate of constituents at a site, it is recommended that staff, the responsible person, and the responsible person's consultant define the objective(s) of modeling for that site.

It is important that staff, consultants, and responsible persons recognize the limitations of ground water modeling when the model results will be used in the decision making process. Ground water models, despite their high degree of precision are, at best, qualitative predictors of future ground water flow[5-3]. Models used to predict ground water flow and the behavior of constituents in ground water at a site should be calibrated using site data to validate the use of that particular model at the site. It is also recommended that DEQ staff require predictions from ground water models to be verified in the field prior to reaching a final decision at the site. This verification is especially important in situations where receptors may be exposed to petroleum or other regulated substances.

Information regarding fundamental model equations and typical model input parameters is provided in Appendix O. This information is intended to provide staff with basic modeling background and typical ranges of values for various common input parameters. The model information and input parameters are not meant as a substitute for site specific data.

[5-3] Rojstaczer, Stewart Alan. 1994. "The Limitations of Groundwater Models." Journal of Geologic Education. Volume 42, pp. 362 - 368.

5.4.3.1.4 Sample Collection Procedures

Decisions made about future actions required at leaking storage tank sites are highly dependent upon analytical data presented for the site. While there is some degree of variability in procedures used to analyze samples in a laboratory, there is a much greater variability in the procedures used to collect those samples. Reports provided to the DEQ Storage Tank Program need to contain a description of the procedures that were used to collect the samples whose analytical results are presented in that report.

The DEQ Storage Tank Program has developed generic soil and ground water sampling procedures that RPs and consultants may use at leaking storage tank sites. These DEQ soil and ground water sample collection procedures are presented in Appendix Z. Responsible persons and consultants are not required to use the DEQ procedures and are encouraged, to develop and use sample collection procedures that account for site-specific conditions and data quality objectives.

5.4.3.2 Risk Assessment

The risk assessment subsection of the SCR deals with evaluating risks to human and environmental receptors posed by the release. In the risk assessment, potential and impacted receptors (including sensitive receptors) must be identified, migration rates for the contaminant(s) must be estimated, and risks to individual receptors must be determined. All potential pathways of exposure including ingestion, inhalation, and dermal contact must be evaluated in the Risk Assessment. The Risk Assessment must also contain proposed remediation endpoints based upon site-specific risks. The overall goal of risk assessment is to determine risks to receptors so that endpoints for corrective action may be defined on a scientific and defensible basis.

Once free product and saturated soils have been removed to the extent that contaminant migration from these sources is minimized, a risk-based decision making process should be utilized to determine the future course of action at a site. Risk based decision making for corrective action is consistent with other regulatory programs such as CERCLA and RCRA Corrective Action and is encouraged by EPA for use in UST programs. It is important to keep in mind that the key decision to be made during all stages of release response and corrective action is: what actions are required to protect human health and the environment?

5.4.3.2.1 Quantitative Risk Assessment

Regional staff have the flexibility to use their professional judgment when evaluating risks at a site. This policy has allowed flexibility regarding methodologies used for assessing risks at sites. It is believed that the Case Manager must have the authority to make decisions regarding the most appropriate course of action at a site. This includes the authority to decide what methodologies are most appropriate. It is recommended that DEQ Case Managers use quantitative risk assessment techniques in the risk-based decision making process when human or environmental receptors will or are likely to be exposed to regulated substances or petroleum constituents. Additional information which may be used to calculate risks is included in Table 5-5 and Appendix P.

It is important to note that although TPH may be useful indicator of petroleum contamination for heavier fuels, TPH cannot be used in most quantitative risk assessment techniques. Quantitative risk assessments are based upon the observed and/or predicted toxicological behavior of individual constituents. Toxicological information does not exist for TPH. It is recommended that semivolatile constituents such as the polynuclear aromatic hydrocarbons (PAHs) be evaluated when quantitative risk assessments are needed at sites involving the release of heavier petroleum products. Naphthalene is the most soluble of the PAHs in ground water and it is recommended that staff require responsible persons to obtain data regarding this constituent when site conditions warrant a quantitative risk assessment and the material released was diesel or fuel oil. Most other PAHs are soluble in only low concentrations; however, they may sorb readily onto soil and several, including benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and chrysene, are suspected carcinogens. When humans may come into contact with soil that is contaminated by diesel or fuel oil, it is recommended that risks from the potentially carcinogenic PAHs be evaluated along with naphthalene.

Decisions regarding what level of risk is acceptable versus the level of risk which is not acceptable must be decided as a policy issue. Historically, most regulatory agencies have used a one in one million risk criterion as a threshold for environmental and occupational decisions. The DEQ Storage Tank Program will use a calculated excess lifetime cancer risk of 1×10^{-6} (one in one million) for individual carcinogenic constituents and a hazard index of 1 for non-carcinogenic constituents as the risk management thresholds for which corrective actions will be required for most pathways of exposure. The exception to this is the drinking water ingestion pathway where DEQ will establish endpoints based upon no exposure when petroleum constituents are present in a private water supply well (see Sections 5.3.2 through 5.3.2.2.3).

Table 5-5. Toxicological Data for Selected Petroleum Constituents.

Constituent	Weight Class of Evidence[1]	Reference Dose, Oral (mg/kg-day)	Reference Dose, Inhalation (mg/kg-day)	Carcinogenic Potency Slope, Oral (mg/kg-day)	Carcinogenic Potency Slope, Inhalation (mg/kg-day)
Benzene	A	3 x 10 -3 E	1.7 x 10 -3 E	5.5 x 10 -2 I	2.9 x 10 -2 I
Toluene	D	2 x 10 -1 I	1.14 x 10 -1 I		
Ethylbenzene	D	1 x 10 -1 I	2.9 x 10 -1 I		
Xylenes	D	2 x 10 0 I			
MTBE			8.57 x 10-1 I		
n-Hexane		6 X 10 -2 H	5.71 x 10 –2 I		
MEK	D	6 x 10-1 I	2.86 x 10-1 I		
Pyrene	D	3 x 10-2 I			
Acenaphthene		6 x 10-2 I			
Benzo(a) pryene	B2			7.3 x 10 0 I	3.1 x 10 0 E
Anthracene	D	3 x 10-1 I			
Naphthalene	C	2 x 10-2 I	9 x 10-4 I		
Chrysene	B2			7.3 x 10-3 E	
Benzo(k)fluoranthene	B2			7.3 x 10-2 E	
Fluorene	D	4 x 10-2 I			
Fluoranthene	D	4 x 10-2 I			
Benzo(b)fluoranthene	B2			7.3 x 10-1 E	
Benz(a)anthracene	B2			7.3 x 10-1 E	

[1] Weight class of evidence (IRIS2001):
A Human carcinogen, with sufficient evidence from epidemiological studies
B1 Probable human carcinogen, with limited evidence from epidemiological studies
B2 Probable human carcinogen, with sufficient evidence from animal studies and inadequate evidence or no data from epidemiological studies
C Possible human carcinogen, with limited evidence from animal studies in the absence of human data
D Not classifiable as to human carcinogenicity, owing to inadequate human and animal evidence

Sources for Reference Doses and Carcinogenic Slope Factors:
I - EPA IRIS database
E - EPA NCEA Regional Support Provisional Value
W - Withdrawn from IRIS

NOTE: Reference doses and carcinogenic potency slopes are updated periodically. It is recommended that staff reference the EPA Region III Risk Based Concentration Table which is updated on a semi-annual basis.

5.4.3.2.2 Endpoint Determination and Future Use

Remediation endpoints are based on information generated during site characterization. Remedial endpoints must be designed to prevent receptor impact. The establishment of remedial endpoints based on a combination of risk and limits of the available technology is considered a reasonable and defensible method of protecting human health and the environment.

When developing endpoints, the responsible person and his/her consultant must consider current and known future land uses within the area. Future land uses that must be considered in the risk assessment are limited to planned land use changes that are: (1) documented in applications or plans filed with the local government; and/or (2) associated with ongoing construction activities. Planned land uses filed with the local government and existing uses identified up to completion of the public participation process of Corrective Action Plan Development must be considered when developing remedial endpoints. Additional guidance on future use may be found in examples 5-7 through 5-13.

Whenever a corrective action is deemed necessary on a risk-to-receptor basis, the owner or operator must propose remediation endpoints for the site to achieve the appropriate level of risk reduction. These endpoints shall address each phase of the hydrocarbon or other compound(s) released as appropriate: free product, residual phases, dissolved phase, and vapor phase. Each remediation endpoint that is proposed should be technically feasible and, in the opinion of DEQ staff, cost effective. It should be kept in mind that acceptable remedial endpoints do not necessarily prevent all exposure to the constituents of concern. Endpoints must be based on risks to identified receptors.

Situations may arise where properties near release sites experience significant changes in land use after the SCR Phase or the CAP Development Phase have been completed. These changes in land use may create exposure pathways and result in impact to a receptor that did not exist at the time that the SCR was completed or the CAP was approved by DEQ. Remedial endpoints must out of necessity be based upon the facts that are known at the completion of the SCR or CAP. It is not feasible for DEQ to re-evaluate every release or re-open every case when land uses near the release site change. It is important for staff and responsible persons to remember that the conclusion of a DEQ approved clean up does not remove liability from the responsible person for damages caused by the release. It is DEQ’s position that bodily injury or property damage resulting from a tank release that was not addressed in the risk based corrective action plan should be addressed via a third party claim. Third parties may seek payment from the responsible person through the court system.

In addition, for regulated, deferred, and partially deferred USTs, Article 10 of Virginia Water Control Law allows disbursements from the VPSTF for third party claims. By law and regulation, third party claims for damages caused by releases from regulated, deferred, and partially deferred USTs cannot be considered until after cleanups are completed. The law allows the VPSTF to reimburse the RP for eligible third party costs in excess of the RP's third party financial responsibility amount up to one million dollars. Responsible persons should be aware that: (1) the monies spent on corrective action also count towards the one million dollars per occurrence limit and in cases involving extensive cleanup, there may be little money left over after corrective action is completed; and (2) they have up to two years to file for reimbursement for third party claims after their case has been closed.

NOTES:

1. **Remediation in excess of that required on a risk basis, such as actions taken to make a property more marketable, may be undertaken by the responsible person as long as it is within the law, but will not be eligible for consideration for reimbursement from the VPSTF.**

2. **The DEQ future use procedures are based on the presumption that the RP, with DEQ's concurrence, will take actions to ensure that risks to known future receptors are below the risk management thresholds established by the DEQ Storage Tank Program. Actions taken by persons other than the RP are not eligible for reimbursement, regardless of whether DEQ would have required the RP to take these actions to address risks to present or known future receptors. DEQ staff, consultants, and RPs need to remember that the VPSTF can only be used to reimburse eligible RPs for reasonable and necessary costs associated with release response and required corrective action at a site.**

Example 5-7. Future Use - Neighboring property developed after case closure

Example. The "Save-a-Bunch" service station completed its cleanup in accordance with a DEQ approved CAP and the Regional Office issued a closure letter for the case. After the case was closed, the owner of an adjoining property decided to build an underground parking garage. The neighbor knows that he will need to de-water the site both during and after construction. Gasoline constituents are present in the ground water although, there is no evidence that these dissolved constituents are from a new release. The person building the parking deck wants DEQ to either: (1) re-open the case and require the RP to remediate the dissolved phase constituents so that a discharge permit will not be needed; or (2) require the RP to build and operate a treatment system and pay for costs to treat that water that must be discharged.

Course of Action: There is no evidence that this land use change was filed with the local government prior to DEQ's approval of the CAP for this release nor is there evidence that a known receptor was missed during SCR and CAP development at the site. DEQ will not re-open the case. If the person building the parking garage discharges petroleum contaminated water to surface water, he/she must have a VPDES permit for that discharge. The affected property owner should be directed to contact the RP to resolve any damage issues. Regional Office staff should provide a copy of the third party claim procedure to the RP.

As a general rule, DEQ will not re-open closed cases unless: (1) new information indicates that the SCR missed a significant amount of contamination; or (2) the Site Characterization process missed a receptor.

Example 5-8. Future Use - No documentation to support future use claim

Example: DEQ is working with a RP to complete a CAP for a leaking storage tank site. During the public notice period, a nearby property owner announces that he intends to build on his now vacant property and wants the cleanup to "guarantee" that any development he undertakes will not be affected by any contamination remaining after the CAP is completed. This nearby property owner has not filed development plans with any local government body nor has he initiated contract negotiations. There is no documentation to support his claim that development will actually occur.

Course of Action: DEQ will not require the RP to modify the CAP to address this property owner's concerns. The CAP must address risks to receptors that presently exist at the site or will definitely exist in the future. Since there is no documented evidence to support the neighbor's claim of future development, the CAP does not need to address this unspecified and undocumented future use.

Example 5-9. Future Use - Development plans on file prior to completion of the SCR

Example: A RP has begun corrective actions in accordance with a DEQ approved CAP. During Corrective Action Implementation, a nearby property owner states that he has had to halt ongoing construction activities because he has encountered petroleum contaminants. Evidence indicates that this petroleum is associated with the RP's site.

The neighbor who is developing his site failed to comment during the public notice process even though he was notified directly (by letter) and informed about the intended corrective actions. This neighbor initiated site development prior to CAP implementation and filed development plans with the local government before the release occurred.

Course of Action: Since development plans were on file with the local government prior to DEQ's approval of the CAP, DEQ would consider this to be an existing use. Corrective actions must be modified to address receptors on the neighbor's property.

Example 5-10. Future Use - Petroleum constituents discharged from a sump

Example: The owner of an existing parking deck detects petroleum vapors and observes a sheen on water in the sump that he uses to keep the below-grade parking levels from flooding. Water from the sump is discharged into a municipal storm sewer. DEQ investigates the complaint and determines that the source of the problem is a gasoline UST at a nearby property.

Course of Action: Storm sewers are considered to be state waters. The discharge of dissolved petroleum constituents from the sump into a storm sewer constitutes a point source discharge of pollutants to surface water and a general or individual VPDES permit must be issued for this discharge. In addition to requiring the RP to conduct release response and corrective action, DEQ will require the tank owner to install a treatment system on the sump (if necessary) to meet permit effluent limitations. Storm drain systems are considered by DEQ to be state waters and, therefore, are considered receptors. The compliance point for the discharge must be at the point where the discharge enters the storm drain. If treatment of the effluent is needed to meet the Petroleum Discharge General Permit limits, the RP will be required to obtain coverage under the Permit and will be required to monitor and report in accordance with the Permit. Once the Storage Tank Program is satisfied that risk-based endpoints have been met for the site and the concentration of petroleum constituents in the effluent are below the waste load allocations calculated for the receiving stream (see Appendix U for the procedure for calculating waste load allocations), DEQ will close the leaking storage tank case. If pollutants are still being discharged from the sump at the time of case closure, the responsibility for the discharge will transfer from the storage tank owner (the RP) to the parking deck owner and the discharge will be permitted in accordance with the regional VPDES program. The parking deck owner may pursue third party action against the RP as the case is now closed.

Notes: (1) The sump is not considered a receptor. (2) If the petroleum constituents continue to be discharged into the storm sewer after case closure, the responsibility for this discharge will transfer from the tank owner/operator to the operator of the sump. The municipality also will have to obtain coverage under a VPDES permit for constituents discharged from the storm sewer.

Example 5-11. Future Use - Dewatering at a neighboring property that was initiated after case closure

Example: A property owner near a closed leaking UST site decides to develop his property. It will be necessary to dewater the site both during construction and after the development is complete. There are low, but detectable concentrations of dissolved petroleum constituents in the ground water at this site and evidence indicates that these petroleum constituents are probably associated with the closed leaking UST case. The person developing his property wants DEQ to reopen the case and require the responsible person to install and operate the dewatering system and obtain the discharge permit.

Course of Action: The DEQ will not reopen the case and the RP will not be required to install or operate the dewatering system. The property owner will be responsible for the dewatering system and for meeting any and all permit requirements. Even though the dissolved phase concentrations are below the limits specified in the Petroleum Discharge General Permit, the person discharging water containing these constituents must have a VPDES permit (either an individual or a general permit).

If it is determined that influent concentrations are increasing and this increase is most likely the result of a new release, regional staff would assign a new case number and all potential responsible persons would be required to investigate. If a new RP was identified or it was determined that a new release was contributing constituents to the dewatering system, the RP for the new release would have to address the dewatering effluent and all other impacts/risks created by the release. Alternatively, if the DEQ staff believed that the increase in effluent levels was caused by previously undiscovered contamination associated with the original release, the Regional Office could reopen the case and require a revised SCR and CAP (if necessary) that would address impacts from the release including, but not limited to, constituents being discharged from the dewatering system.

Example 5.12. Future Use - discharge of constituents to the sanitary sewer

Example: A property owner near a closed leaking storage tank site is performing construction dewatering that necessitates a discharge to the local sanitary sewer system. Due to petroleum contamination, this person must treat the discharge to meet the local discharge requirements. The discharger wants DEQ to reopen the nearby closed leaking storage tank case and compel the RP to manage the dewatering system so that it complies with local discharge requirements.

Course of Action: DEQ will not reopen the closed case unless there is evidence of a new release or evidence that a significant reservoir of contamination was overlooked during the site characterization process. The person discharging the petroleum contaminated water to the sanitary sewer must comply with the local government requirements and must address damages via a third party claim.

NOTE: At those sites where the discharge goes into a sanitary sewer system, the person discharging the constituents or the RP (depending upon the closure status of the case) must satisfy any pretreatment requirements imposed by the local service authority. Neither the discharger nor the RP, however, will be required to have an individual or general VPDES permit for a discharge to a sanitary sewer system since the local service authority holds the ultimate permit for the discharge where it reaches state waters.

Example 5-13. Future use – Actions taken by a third party
Example: The RP notifies DEQ of a release of gasoline at a service station following the removal of all the USTs at that site. The RP is a tenant who does not own the property. During the time that the RP is characterizing the site, the property owner leases the land to another person. This new tenant immediately excavates soil from the site, places 3 new gasoline USTs in the excavation, and announces that he plans to operate a gasoline station at this location. The soil removed to install these three new USTs is heavily contaminated by petroleum and the new tenant incurs costs for treating this soil at a thermal treatment facility. The new tenant then notifies DEQ and the RP that he has taken these actions and demands to be reimbursed from the VPSTF for costs incurred for treating the soil. Course of action: The new tenant is not the RP as identified by DEQ and, therefore, is not eligible for reimbursement. The issue of whether DEQ would have required the RP to perform these same actions to reduce risks to a known future receptor is irrelevant. Third parties should be directed to contact the RP to resolve any damage issues. Regional Office staff should provide a copy of the third party claim procedure to the RP.

The Virginia Department of Transportation (VDOT) often initiates new road construction projects and/or upgrades to existing roads. As a result of these activities, VDOT may encounter contamination from sites that were closed by the DEQ Storage Tank Program. VDOT is slightly different than most other entities in that they do not have to file building plans with local governments. VDOT does, however, have a "Six Year Plan" that outlines future road construction projects. In order for DEQ to consider a VDOT project to be a known future use, the project must: (1) be included in the Six Year Plan; and (2) be funded.

Regional Case Managers should advise consultants and others preparing Site Characterization Reports to review the VDOT Six Year Plan for the area to determine if the release may pose risks to known future uses. If risks to known future receptors are found and exceed the DEQ risk management thresholds, the RP should be required to mitigate the risks to appropriate levels.

NOTE: The fact that VDOT may incur additional project costs to deal with contaminated materials does not constitute a risk. Moreover, lack of Fund access by VDOT is not a risk.

5.4.3.2.3 Protection of Ground Water as a Resource

Releases from tanks or other containment systems commonly result in contamination of ground water. Once the source of contamination has been neutralized or eliminated, decisions regarding the necessity of and extent to which ground water must be remediated should be based upon a combination of risks and applicable remedial technologies. Ground water is not necessarily a receptor, but rather a medium through which constituents may migrate to a receptor.

When a potential receptor utilizes ground water as a source of potable water, DEQ will evaluate remedial options on the basis of preventing the receptor from being exposed to contaminated ground water via the ingestion pathway. Remedial endpoints must, therefore, be designed to prevent ingestion of contaminated

water. DEQ has established this policy due to the low drinking water standards for certain petroleum constituents (e.g. benzene) and the potential for variability in constituent concentration within the impacted drinking water supply.

Corrective actions dealing with impacted drinking water supplies may take several forms. The corrective action may protect the receptor by: (1) reducing contaminant concentrations in the impacted medium, or (2) eliminating the pathway of contact between the receptor and the contaminant. The relative costs of these approaches and the risk reduction likely to be achieved should be compared when determining what type of corrective action to take. Other important issues to be considered include:

1. What costs are associated with an alternate water supply (AWS)?

2. Are the costs for AWS incurred once (e.g installation of a deep well or hookup to public water) or do they recur on a continuing, long-term basis (e.g maintenance of a carbon filtration system)?

3. Have wells or receptors already been impacted?

4. What is the number of wells impacted or likely to be impacted by the release?

5.4.3.2.4 Transitory Receptors

Persons coming into contact with or having the potential to come into contact with contaminated media are considered receptors or potential receptors regardless of the duration of the exposure. Risks to transitory receptors must, therefore, be evaluated along with risks to chronic or long-term receptors.

A common type of transitory receptor at many sites is the construction worker. When construction workers will come into contact with contaminated media, risks to these individuals must be evaluated. It is important for staff to remember that the frequency and duration of exposure for transitory receptors such as construction workers are different than those for chronic or long-term receptors in a residential exposure scenario and risks to these persons must be evaluated accordingly.

NOTE: DEQ believes that risks to persons involved with the cleanup of a regulated substance do not need to be considered in the SCR. These persons should be OSHA trained to deal with hazardous constituents and they are expected to utilize the appropriate procedures and personal protective equipment to reduce their exposure to acceptable levels.

5.4.3.2.5 Discharges of Regulated Substances to Surface Water

DEQ staff must frequently deal with releases from storage tanks that reach surface water. The "Surface Water Standards with General, Statewide Application" (9 VAC 25-260-20) states:

> "All state waters shall be free from substances attributable to sewage, industrial waste, or other waste in concentrations, amount, or combinations which contravene established standards or interfere directly or indirectly with reasonable, beneficial uses of such water or which are inimical or harmful to human, animal, plant, or aquatic life. Specific substances to be controlled include floating debris, oil, scum, and other floating materials;..."

This general standard indicates that petroleum or regulated substances entering surface water must be controlled. DEQ staff will require responsible persons to prevent releases from causing a sheen on surface waters or violating surface water quality standards (see Examples 5-7 through 5-13 for determining the person who should be the permittee at sites with future use issues).

Appendix R contains a list of in-stream limits for constituents commonly associated with petroleum and provides suggestions to staff regarding methods that may be used to determine maximum concentrations of constituents that may be discharged to surface water via baseflow and interflow. The limits for aquatic life were established at concentrations that are believed to be protective of beneficial uses of the receiving stream. The regional Case Manager shall have the ultimate authority to determine the appropriate means of establishing the maximum concentration of a constituent from a storage tank release which may be discharged to surface water via baseflow or interflow.

NOTE: Limits for point source discharges to surface water that have or need a VPDES permit shall be established by the DEQ Permit Staff.

5.4.3.2.6 Drinking Water Standards and Remedial Endpoints

The DEQ Storage Tank Program does not use drinking water standards as clean up endpoints. The Storage Tank Program has a zero tolerance practice for petroleum constituents in private water supply wells. The provision and/or maintenance of a drinking water supply that is not contaminated by petroleum constituents is a remedial endpoint at all sites where drinking water supplies have been impacted or may be impacted.

The DEQ Storage Tank Program considers the clean up of the source area to endpoints that prevent impacts to water supplies to be the preferred method of protecting drinking water supplies. DEQ staff, tank owners/operators, and consultants need to be aware, however, that current clean up technologies may not be able to prevent drinking water supplies from becoming contaminated at certain sites. The tank owner/operator and consultant must consider remedial alternatives related to both the clean up of contaminants and the permanent provision of alternate water supplies in any situation where water supplies have been impacted or may be impacted by the release.

NOTE: The provision of an alternate water supply that is highly unlikely to become contaminated may be the preferred course of action in those instances where the source is still active (i.e. the storage tanks are still being used) and future releases are possible.

Remedial endpoints used by the Storage Tank Program are site-specific and risk-based. Moreover, remedial endpoints are based upon actual risks to current receptors and known future receptors (see Section 5.4.3.2.2 for additional information on endpoint determination and future use). Drinking water is only a pathway of concern when ground water in the area near the release is presently used as a drinking water source or plans have been filed with a governmental entity for using the ground water as a drinking water source.

Table 5-6. Primary Drinking Water Standards

Constituent	MCLG[1] (mg/l)	MCL[2] (mg/l)
Benzene	Zero	.005
Benzo(a)pyrene	Zero	.0002
Ethylbenzene	.7	.7
Ethylene dibromide	Zero	.00005
Styrene	.1	.1
Toluene	1	1
Xylenes (total)	10	10

[1] Maximum Contaminant Level Goal (MCLG) - The maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows for an adequate margin of safety. MCLGs are non-enforceable public health goals. (EPA Office of Ground Water and Drinking Water).

[2] Maximum Contaminant Level (MCL) - The maximum permissible level of a contaminant in water which is delivered to any user of a public water system. MCLs are enforceable standards. The margins of safety in MCLGs ensure that exceeding the MCL slightly does not pose significant risk to public health. (EPA Office of Ground Water and Drinking Water).

Note: The Virginia Dept. of Health has established an advisory level of 20 ug/l (.02 mg/l) for MTBE in public water supplies. The Virginia Health Department will notify or advise DEQ when the MTBE concentration in a public water supply equals or exceeds this concentration.

5.4.3.3 Remediation Assessment

The final section of the SCR is the remediation assessment. The primary purpose of the remediation assessment is to evaluate the potential for remediation at the site and the applicability of potentially appropriate remedial technologies. Along with considering the merits and feasibility of active remedial technologies, the owner or operator is also expected to evaluate the potential for natural attenuation at the site as well as case closure with no further action.

A description of and conceptual design for each potential remedial alternative should be included in the remediation assessment along with an estimated time frame for implementation and duration of the

remedial alternative to achieve the risk based endpoints. The report must provide an estimate of the relative costs for the applicable technologies. Finally, the remediation assessment must contain a recommended course of action based upon all information generated during the site characterization process.

5.4.4 Site Characterization Following Discharges from Small Heating Oil Tanks

Discharges from heating oil tanks are subject to the requirements of Article 11 of Virginia Water Control Law and persons causing or permitting discharges of oil from these tanks are required to report, contain, and clean up the discharge. Soil contamination at any tank site that exceeds 100 mg/kg for TPH is considered evidence of a confirmed release and must be reported to DEQ. The DEQ Storage Tank Program separates confirmed releases from small heating oil tanks (i.e. those heating oil USTs and ASTs having a capacity of 1000 gallons or less) into four (4) categories based upon the information staff have about the site at the time the discharge is reported, severity and extent of contamination, and risks from the discharge. Figure 5-1 is a flowchart outlining the approach for responding to discharges from small heating oil tanks.

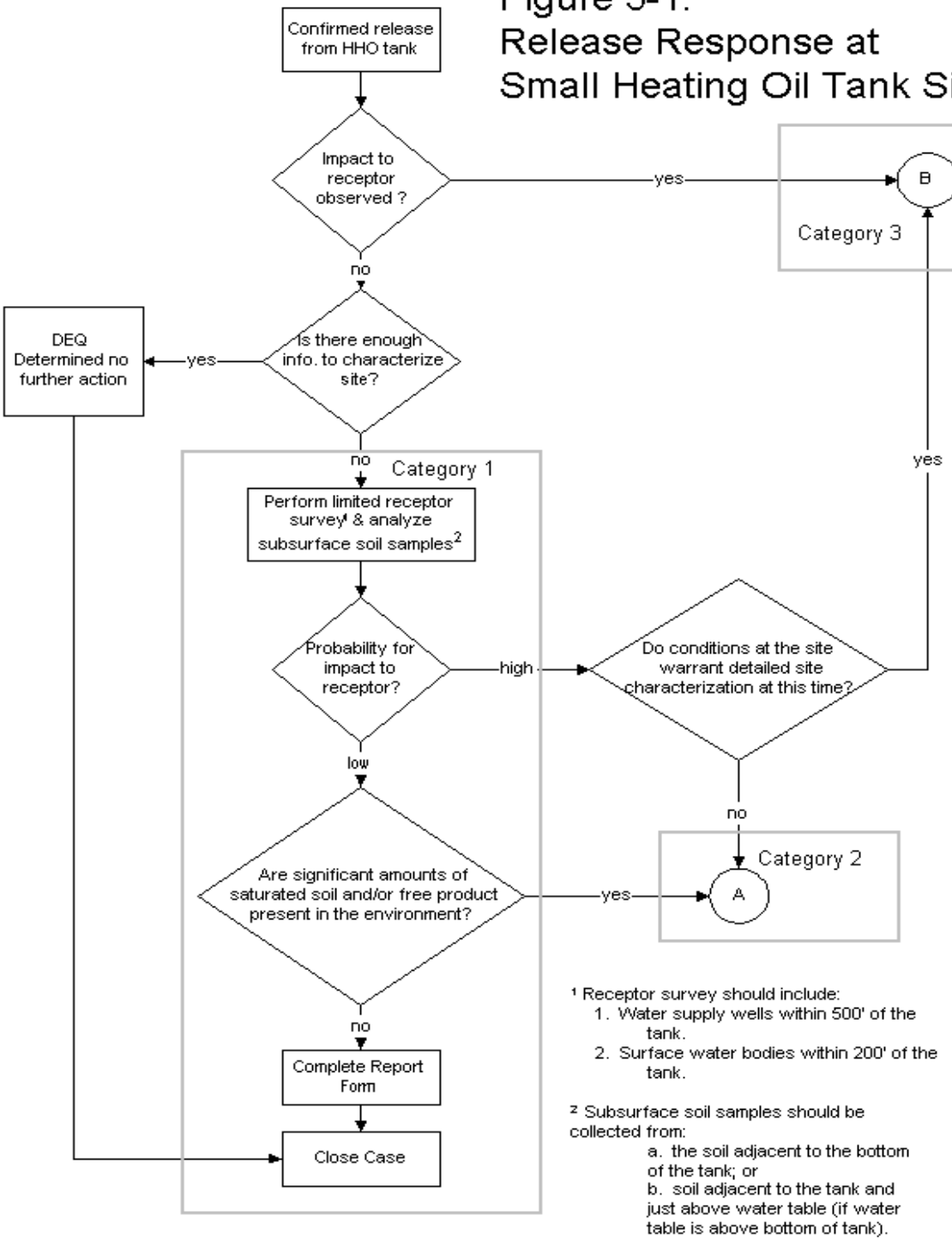
As with all other releases or discharges of petroleum or regulated substances into the environment, staff should ensure that appropriate actions are taken to protect human health and the environment. The release or discharge of oil from the tank and piping must be stopped, free product must be removed to the extent practicable, and petroleum saturated soil must be addressed in accordance with DEQ Storage Tank Program guidance. The DEQ Case Manager may determine that site-specific conditions do not warrant free product recovery or the remediation of petroleum saturated soil. Documentation that free product recovery or the remediation of petroleum saturated soil is not required must be provided in the case file.

5.4.4.1 DEQ Determined No Further Action

When a discharge from a small heating oil tank is reported, the DEQ Case Manager may use existing information and professional judgement to determine that no further action (NFA) is necessary at the site. NFA sites pose a low risk to impact receptors, have little or no free product, and minor amounts or no petroleum saturated soil. A NFA determination is appropriate at sites where the area is served by public water, the leaking tank has been out of service for an extended period and is not believed to be contributing product to the environment, and there is no reason to expect any impact(s) to receptor(s).

If an out of service tank is present at the site, the case closure letter (Appendix E) should recommend that the tank operator contact the local building official/fire marshal and properly close the tank. The Case Manager has the discretion to withhold the closure letter until the tank has been properly closed if this action is believed necessary to prevent further discharges.

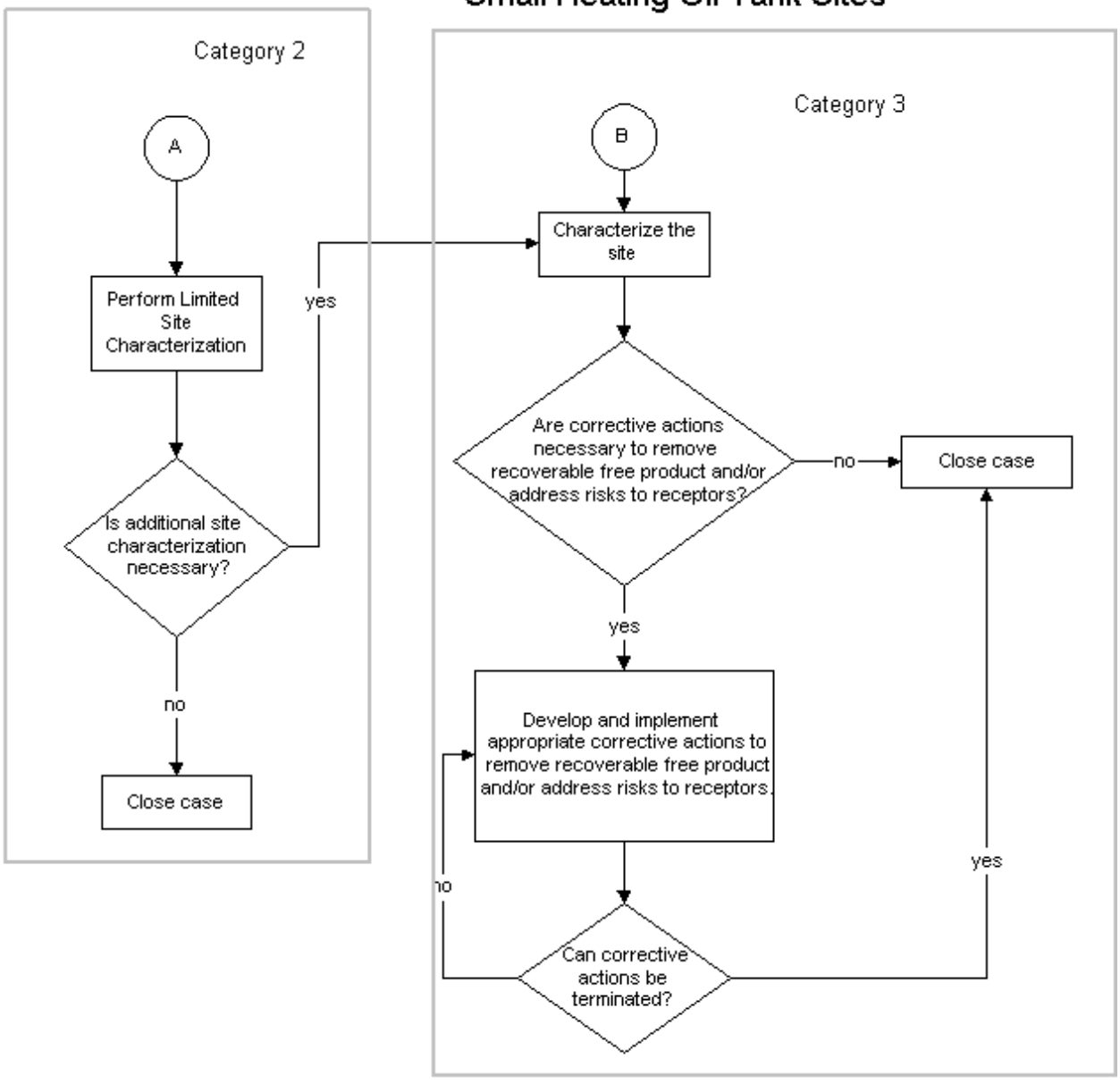
Figure 5-1. Release Response at Small Heating Oil Tank Sites



[1] Receptor survey should include:
1. Water supply wells within 500' of the tank.
2. Surface water bodies within 200' of the tank.

[2] Subsurface soil samples should be collected from:
a. the soil adjacent to the bottom of the tank; or
b. soil adjacent to the tank and just above water table (if water table is above bottom of tank).

Figure 5-1 continued. Release Response at Small Heating Oil Tank Sites



5.4.4.2 Category 1 Small Heating Oil Tank Sites

Category 1 sites pose a low risk to impact receptors, have little, or no free product and minor amounts or no petroleum saturated soil. These sites only require limited field work and submission of a Small Heating Oil Tank Release Characterization Report Form (Appendix AC). If an impacted receptor has not been identified at the time the discharge is reported and the *DEQ determined NFA* category is not appropriate, the heating oil tank discharge will start as a *Category 1* site.

Normally work performed at a *Category 1* discharge site includes equipment, travel and time to investigate the discharge, advance borings using a hand auger, collect soil samples, and conduct a survey of potential receptors within 500 feet of the leaking tank. Also included is laboratory GC analysis of samples for DRO/TPH, personnel time to complete the Leaking Heating Oil Tank Characterization Report Form and prepare a reimbursement claim. At *Category 1* sites where the DEQ Case Manager believes the tank continues to discharge oil, site work may include removing and disposing of residual product from a heating oil tank.

The following number of units are typically authorized at *Category 1* sites:

5	Hours	M0004	Mid-Level Professional (site recon, general site management*****, report prep)
★	Mile	M0617	Auto Mileage
★	Each	M1157	Bailer - Disposable Polyethylene
★	Sample	M1366	Method 8015B - modified TPH-DRO in water/wastewater
3	Sample	M1368	Method 8015B - modified TPH-DRO in solid waste/soil
★	Hour	M1482	Mid-Level Professional Travel
★	Hour	T001	Free Phase Product Removal Using a Vacuum Truck
★	Gallon	T017	Free Product/Contaminated Water Disposal
3	Sample	T030	Soil Sampling
1	Claim	T114	Small Heating Oil Tank Claim Prep

★ = Site Dependent

* = Time for site management is included in the hours allotted to the mid-level professional and Task T040 (General Site Management) will not be authorized.

Appropriate travel time up to 4 hours each way and a maximum of 200 miles each way may be authorized. Based on site conditions, the Case Manager may authorize additional units to advance additional borings, and collect and analyze samples.

At many *Category 1* sites an out-of-service heating oil tank is still in place. The DEQ Case Manager has the option of requiring that the remaining oil be removed from the tank if it is believed that the product remaining in the tank is a significant continuing source of contamination.

A *Category 1* site may be closed if the Case Manager determines that there is low risk to impact a receptor, the discharge has been stopped, and site information indicates there is little or no free

product or no petroleum saturated soil.

5.4.4.3 Category 2 Small Heating Oil Tank Sites

Discharges at *Category 2* heating oil tank sites have free product, petroleum saturated soil, or present a high probability to impact a surface water body or reach a drinking water supply well. Limited soil excavation, free product removal and vapor mitigation may be performed at *Category 2* sites. These sites require submittal of a short narrative site characterization report. It is anticipated that most of the heating oil cases not closed as *Category 1* sites can be closed following this characterization.

Category 2 sites often can be characterized by excavating up to 26 cubic yards (approx. 39 tons) of petroleum saturated soil, and conducting field work. Normally work performed at a *Category 2* discharge includes equipment, labor, time, and travel necessary to investigate the discharge and remove and dispose of up to 26 cubic yards (approx. 39 tons) of saturated soil. Time is included to conduct a survey of potential receptors within 500 feet of the leaking tank, advance borings using a hand auger, collect samples, prepare an adequate narrative report, and prepare a reimbursement claim. When applicable, the following documentation should be included in the site report: all boring logs, well construction diagrams, lab analytical reports, hauling and disposal manifests, and local permits. Photographic documentation is suggested.

The following Materials and Tasks Codes and associated units are typically authorized at *Category 2* Sites:

6	Hour	M0004	Mid-Level Professional (site recon, general site management*****)
★	Hour	M0018	Laborer (assist in soil excavation/hand digging)
★	Mile	M0617	Auto Mileage
1	Day	M0660	Backhoe Loader - Cat 426 Type w/operator
3	Sample	M1368	Method 8015B - modified TPH-DRO in solid waste/soil
★	Hour	M1482	Mid-Level Professional Travel
★	Hour	T001	Free Product Removal Using a Vacuum Truck
★	Ton	T012	Soil Treatment at an Incineration or Bioremediation Facility
★	Ton	T013	Petroleum Contaminated Soil Disposal at a Landfill
★	Gallon	T017	Free Product/Contaminated Water Disposal
3	Sample	T030	Soil Sampling
1	Round Trip Mob	T036	Heavy Equipment Mob/Demob
★	Cubic Yard	T042	Backfilling
★	Ton/Mile	T075	Soil Hauling < 75 Tons the First 100 Miles (use T076 for additional miles > first 100)
★	Ton/Mile	T076	Soil Hauling < 75 Tons Over 100 (use only when miles > 100 in T075)
6	Hour of Report Prep	T100	Report Preparation

1	Claim	T114	Small Heating Oil Tank Claim Prep

★ = Site Dependent
***** = Time for site management is included in the hours allotted to the mid-level professional and Task T040 (General Site Management) will not be authorized.

Appropriate travel time up to 4 hours each way and a maximum of 200 miles each way may be authorized. Based on site conditions, the Regional Case Manager may authorize additional Task and Material and units to characterize and clean-up the site. The *Category 2* AAF lists some of the additional Tasks and Materials commonly used. Certain materials such as plastic tarps, hay bales and plywood sheets are used at many sites. The Case Manager will only reauthorize these items when the useful life of these materials is gone.

If the *Category 2* site characterization indicates additional site work is needed to protect human health and the environment and to meet program requirements (stop the source, recover free product, and address saturated soil) then the site becomes a *Category 3* case.

5.4.4.4 Category 3 Small Heating Oil Tank Sites

Discharges at *Category 3* small heating oil tank sites have impacted or present a high probability to impact a receptor. These sites require a full SCR before determining appropriate corrective actions. Work for *Category 3* sites follows the program's normal procedures for release response and corrective action. The Case Manager may require initial abatement, an appropriate site characterization, and, if warranted, the development and implementation of a Corrective Action Plan.

5.4.4.5 Activity Authorization at Small Heating Oil Tank Sites

New AAFs have been developed specifically for the work likely to be performed at *Category 1* and *2* small heating oil tank sites. Activities performed at *Category 1* and *2* sites are performed primarily in the Site Characterization Phase. Occasionally, it may be necessary to perform limited additional work in the Site Characterization Addendum and Post SCR Monitoring Phases.

When a site advances from one category to a higher category, the Case Manager should collect all AAFs for all categories and verify the work performed with one Verification Form. In these instances, the Case Manager has the option to have the RP/consultant combine all approved work for the site onto one AAF for verification.

When installation of monitoring wells is authorized at a *Category 2* site, abandonment of the wells should be performed in a separate Closure Phase. Task T114, Small Heating Oil Tank Claim Prep should be authorized for the well abandonment done during this Closure Phase.

Sites that transition from one category to another, are eligible for only one claim preparation task for the Site Characterization Phase.

If a site transitions from either a *Category 1* or *2* site to a *Category 3* site, it continues in the Site Characterization Phase. Only Task T064, Reimbursement Claim Preparation, should be authorized for sites that transition to *Category 3*.

5.5 FREE PRODUCT REMOVAL

Section 270 of the UST Technical Regulation requires the removal of free product to the maximum extent practicable. Moreover, free product removal must be conducted in a manner that minimizes the spread of contamination into previously uncontaminated zones. In most instances, free product thickness should be .01 feet or less unless continued recovery efforts cannot attain this minimum and more aggressive recovery methods are not warranted based upon lack of receptors or other considerations including the lack of product mobility. It is recommended that regional staff consider the free product removal goal of preventing the spread of contaminants into previously uncontaminated areas when deciding if free product removal may be terminated.

Free product removal may be initiated prior to the Corrective Action Plan/Permit process and may be conducted during any corrective action phase. Although free product removal may be conducted independently of formal corrective actions, long term free product removal efforts are considered a type of corrective action and should be incorporated into a Corrective Action Plan if they will continue after the completion of the Site Characterization Phase.

The owner or operator is not required to bid the installation and operation of a free product recovery system if the free product removal system is installed prior to the completion of the Site Characterization Phase. Approval for such free product recovery activities shall be handled through the activity authorization process. Free product removal systems installed after completion of the Site Characterization Phase must be bid using the process outlined in Sections 4.6 through 4.6.5. Responsible persons and consultants should refer to the VPSTF Reimbursement Guidance Manual for additional information about bidding requirements.

If free product is being removed at a site, a Free Product Removal Report will be due within 45 days after confirming the release, within 45 days after free product is first encountered, or on a schedule as established by the Regional Office. Additional reports, if necessary, will be required on a schedule as established by the Regional Office. A suggested set of elements to be addressed in the Free Product Removal Report is contained in Appendix C. Regional staff, at their discretion, may request or require additional information.

5.6 PETROLEUM SATURATED SOIL

When subsurface contamination is found, DEQ requires the responsible person to stop the source of contamination, recover all practicably recoverable free product, and remove or otherwise address petroleum saturated soils to prevent the continued accumulation of free product on the water table. DEQ has defined petroleum saturated soil as the residual concentration of a particular petroleum product at

which the product will flow through the soil at a rate not to exceed 1 x 10^{-5} meters per day. Soil saturation concentrations have been defined for six petroleum products and these concentrations are listed in Table 5-7.

Table 5-7. Soil Saturation Values by Petroleum Product (all values represent TPH in Parts Per Million)

Gasoline	Kerosene	Diesel	Fuel Oil #2	Fuel Oil #4	Fuel Oil #6
8,300 ppm	11,200 ppm	11,000 ppm	13,000 ppm	18,000 ppm	44,700 ppm

It is important for staff to realize that the petroleum saturated soil concentrations listed in Table 5-7 are not risk based concentrations nor will they prevent petroleum constituents in the dissolved phase from leaching into ground water. The values listed in Table 5-7 represent the petroleum concentrations that are likely to contribute to or result in free product at a site.

Regional staff, tank owners or operators, and consultants must address soil having a measured TPH concentration equaling or exceeding the concentrations listed in Table 5-7. Petroleum saturated soils are considered to be a continuing source of free product. These soils must be addressed as deemed appropriate by the regional Case Manager. Regional staff may require the tank owner or operator to actively treat or remove those soils regardless of risks posed by constituents in those soils. Staff may also decide that no further action is needed to address these soils if there is no free product, there are no risks from the petroleum, and there is no benefit associated with removing or treating the soil.

As with free product removal, petroleum saturated soil may be addressed during any corrective action phase. Actions taken to remove or treat petroleum saturated soil must be pre-approved by the Regional Office.

NOTE: Staff and responsible persons must realize that the soil saturation concentrations are not remedial endpoints. Remedial endpoints at all sites will be established on a risk to receptor basis.

5.7 CORRECTIVE ACTION

Corrective action may be defined within the scope of the storage tank programs as those measures or actions which are undertaken to reduce contamination and/or risks from that contamination on a long term basis. This definition is quite broad and may encompass initial abatement measures. Fundamental differences between initial abatement measures and corrective actions are related to risk characteristics and the temporal scale required to address those risks. Initial Abatement Measures are, by nature, actions which must be undertaken quickly in order to abate an acute hazard. Corrective actions, by contrast, generally take longer to implement and focus principally on risks posed by chronic exposure.

The basic objective of corrective action is to reduce risks to impacted or potentially impacted receptors. Most of the time, risk reduction will be achieved through the clean up of contaminated media. Risk reduction may, on occasion, be achieved by breaking the pathways of contact between the receptor and

contaminant(s). Examples of this include the provision of public water or a new water supply well to users of an impacted well and the use of institutional controls (e.g. placing fences or other barriers around the contaminated zone to prevent receptors from coming into contact with contaminants).

When site characterization has been completed, the regional staff must decide the future course of action at the site. Factors to consider when determining the necessity of undertaking corrective actions include:

1. Is there a continuing fire, explosion, health, or safety hazard posed if corrective action does not occur?

2. What are the chronic exposure risks to receptors? Is the carcinogenic lifetime risk created by the released constituent(s) greater than 10^{-6} (one in one million) or is the hazard index for non-carcinogenic constituents greater than 1?

3. What would be the result/impact of undertaking no corrective action?

4. Will corrective action measurably reduce risks to one or more receptors?

5. What is the most cost-effect method by which to remove the contaminant mass required to achieve the desired risk reduction?

Regional staff have the authority to determine whether corrective action is required for a release. It is expected that regional staff will usually require corrective actions to be undertaken for the following situations:

1. There are continuing acute hazards caused by the release (e.g. fire, explosion, exposure of a receptor to a concentration of a constituent that is acutely toxic);

2. A water supply well has been impacted;

3. There is a risk that a water supply well (or wells) may be impacted by contaminants;

4. There is a discharge or potential discharge of dissolved phase constituents to surface water in excess of the water quality standards;

5. There is a discharge of petroleum or other regulated substance causing a sheen, film, or emulsion on surface water;

6. Recoverable free phase contamination remains at the site after the SCR has been approved;

7. Petroleum saturated soil exists at the site and may/will continue to act as a source of free product;

8. Vapors from regulated substances are chronically present in a subsurface structure; and

9. The estimated lifetime cancer risk for any carcinogenic constituent released at the site exceeds one in one-million and /or the hazard index for non-carcinogenic constituents exceeds one.

5.7.1 Phase II Initial Abatement

Phase II Initial Abatement comprises a limited scope of corrective actions which may be performed after the site characterization phase has been completed. Phase II Initial Abatement was developed as an administrative procedure to allow the tank owner or operator to undertake limited corrective actions (upon receiving DEQ approval) without having to develop a formal CAP. DEQ originally intended Phase II Initial Abatement to be used in situations where the removal of residual contamination was the only type of corrective action needed. Expanding upon the original intent, Phase II Initial Abatement may be used in situations where the proposed remedial technologies are simple, the time required to complete corrective action is relatively short, and little DEQ oversight is needed once the activity has been approved.

The types of activities that may be performed under Phase II Initial Abatement are listed below. In contrast with Initial Abatement Measures, **Phase II Initial Abatement Measures may only be undertaken with Regional Office approval prior to the initiation of those activities**.

Activities that may be performed under Phase II Initial Abatement:

1. *Excavation and Treatment or Disposal of Petroleum Contaminated Soil*
   Petroleum contaminated soil may be excavated and treated or disposed at a permitted treatment, storage, or disposal facility as a Phase II Initial Abatement Activity. The volume of soil to be excavated may not exceed 500 cubic yards.

2. *Storage Tank Removal*
   Where warranted to prevent the further release of petroleum or regulated substance into the environment, staff may require the removal of out of service storage tanks. This activity may take place under Phase II Initial Abatement or CAP Implementation.

Phase II Initial Abatement may be used after the following conditions have been met:

1. A SCR for the site has been received by the Regional Office;

2. Regional staff determine that contaminants in the dissolved and vapor phases do not require remediation; and

3. Regional staff direct the responsible person to proceed with Phase II Initial Abatement.

Phase II Initial Abatement Procedure:

1. A SCR is received by the Regional Office

2. The owner or operator and regional Case Manager believe that Phase II Initial Abatement is appropriate for the site and the conditions under which Phase II Initial Abatement may be used are met.

3. The owner or operator submits an AAF for the proposed Phase II Initial Abatement activities. A Bid Summary Form must be submitted for non-UCR items.

4. The regional Case Manager reviews the AAF and Bid Summary Form and approves appropriate activities and units. The Case Manager sends the AAF and Bid Summary Form to the owner or operator along with a letter authorizing the proposed activity and requiring the owner or operator to submit a report upon completion of Phase II Initial Abatement summarizing the work completed.

5. The owner or operator initiates and completes Phase II Initial Abatement and sends a report summarizing those activities to the Regional Office.

NOTE: Phase II Initial Abatement is believed to be an appropriate administrative tool to use for most types of corrective action involving limited soil removal and treatment/disposal. An exception to this may be situations where the soil will be excavated and subsequently, land farmed, bioremediated, or otherwise treated at a site that does not have a waste management permit. It is believed that public notice is important in this type of situation in order to inform the neighbors of the proposed activity and allow them the opportunity to comment on the proposed actions. Corrective actions involving the land farming or treatment of petroleum contaminated soil at sites not having a waste management permit must go through the CAP permitting process.

When soil will be excavated and treated or disposed offsite as part of a Phase II Initial Abatement activity, the remediation assessment of the SCR must specify the following:

1. volume of soil to be removed;

2. depth to which soil removal will occur;

3. criteria for removing contaminated soil (the concentration of adsorbed phase constituents in soil to be removed);

4. a description of sampling methodology to be used during the excavation process; and

5. a description of the soil treatment or disposal location (i.e. What type of a site is involved? Does the facility have a waste management permit?).

5.7.2 Interim Authorization

Responsible persons may initiate corrective actions prior to Regional Office approval of the CAP through the Interim Authorization process. As indicated in Section 280 of the UST Technical Regulation, the

purpose of Interim Authorization is to promote a more effective clean up by allowing remedial efforts to be initiated in a timely manner.

Criteria for Initiating Corrective Actions under Interim Authorization:

1. The cleanup shall consist of activities that are necessary to minimize contamination and promote a more effective cleanup of contaminants at the site.

2. The cleanup activities shall not interfere with the development of the SCR or the CAP.

3. Cleanup activities performed under Interim Authorization shall not result in a discharge to surface water until a CAP or VPDES permit is issued.

4. Interim Authorization should not be granted prior to the submission of a SCR unless: (1) an emergency situation exists at a site; or (2) a potable water supply well has been impacted and an alternate water supply is needed. Regardless of whether Interim Authorization has been granted, a SCR must be submitted for the site.

5. Actions performed under Interim Authorization must be incorporated into a CAP for the site. In all instances where Interim Authorization has been granted, a CAP shall be required.

6. A detailed description of work to be performed under Interim Authorization must be provided to the Regional Office.

Interim Authorization Procedure:

1. The owner or operator requests the initiation of corrective actions under Interim Authorization. Along with this request, the owner or operator must submit an AAF, a Bid Summary Form, and a description of the actions to be taken to the Regional Office.

2. The regional Case Manager reviews the information submitted and approves appropriate activities and units.

3. The Case Manager sends the AAF and Bid Summary Form to the owner or operator and directs the owner or operator to bid scopes of work listed on the Bid Summary Form in accordance with the procedures for Bidding Corrective Action Plan Implementation (See Sections 4.6 - 4.6.5 of this Manual).

4. The owner or operator obtains bids for scopes of work listed on the Bid Summary Form and submits these bids to the Regional Office for review along with a Bid Comparison Form.

5. The regional Case Manager verifies the bid selections, signs the Bid Comparison Form, and returns that form to the owner or operator along with a letter providing Interim

Authorization to proceed with the specified scope of work.

6. The owner or operator initiates the actions approved under Interim Authorization.

NOTE: The Regional Remediation Manager or Compliance and enforcement Manager should sign the Interim Authorization Letter. If this manager is away from the office for greater than one day, the Case Manager may sign the letter.

5.7.3 Corrective Action Plan and Permit Process

Corrective actions that are complex in nature, require extensive time to complete, and need input from DEQ should go through the Corrective Action Plan (CAP) and Permit process instead of Phase II Initial Abatement. All corrective actions involving the remediation of constituents in ground water should go through the Corrective Action Plan and permit process. In general, any corrective action involving a remediation system needs to go through the CAP and Permit process. Sites needing free product recovery after the completion of the SCR should also go through the Corrective Action Plan and Permit process as well as any case in which an alternate water supply has been required.

Statutory and regulatory procedures are different for regulated USTs than they are for exempt USTs, excluded USTs, and ASTs. This manual explains regulatory and administrative procedures for conducting corrective action for both regulated and unregulated tanks. Guidelines contained within this document were written with the intent of minimizing administrative and procedural differences between the two groups of tanks while remaining within the specified scope and requirements of individual statutes and regulations.

5.7.3.1 Corrective Action Plans and Permits for Regulated, Deferred, and Partially Deferred USTs

Corrective Action Plans

The UST Technical Regulation (9 VAC 25-580-280) states that DEQ, upon reviewing information provided by the Site Check through Site Characterization activities, may require the UST owner/operator to develop and submit a Corrective Action Plan (CAP) for dealing with contaminated media. The plan that is submitted to DEQ must provide for the adequate protection of human health and the environment. If a CAP is required, owners/operators must submit the plan according to a schedule and format established by DEQ.

A CAP utilizes information derived during Initial Abatement and Site Characterization and proposes corrective measures that should be used to reduce risks posed by the release to acceptable levels. CAPs must include a detailed description of the corrective actions proposed, projected endpoints, a schedule of implementation, and operational and post operational monitoring schedules. A list of elements that usually need to be addressed in a CAP is included as Appendix C.

Information required by the UST Technical Regulation and needed in almost every CAP includes:

1. remedial endpoints;
2. a monitoring schedule;
3. a contingency for the provision of an alternate water supply (if applicable);
4. a description and schedule of system operation and maintenance;
5. a proposed time table for system installation;
6. a schedule for the submission of status reports;
7. a description of and schedule for post operational monitoring;
8. a recommended public notice procedure; and
9. a description of actions taken to obtain any federal, state, or local permits that are necessary to implement the CAP.

When evaluating a CAP, it is recommended that regional staff consider the following:

1. Is the design/system flexible to accommodate changes in site conditions?
2. Can a significant portion of the targeted phase be removed in a timely, cost-effective manner?
3. Are endpoints for individual phases internally consistent (e.g., is the residual phase endpoint adequate to maintain the dissolved phase endpoint)?
4. Are the proposed endpoints necessary to achieve adequate protection of human or environmental receptors?
5. Can remediation progress of all phases be effectively monitored during the cleanup?
6. Is the proposed monitoring plan adequate for measuring the effectiveness of the remediation?
7. Is the post-remediation monitoring period adequate to demonstrate maintenance of the endpoints?
8. What permits are needed (other than the CAP Permit) and what actions are needed to obtain those permits?

9. What wastes will be generated as a result of remediation and how will these wastes be handled and/or disposed?

10. If the corrective action involves clean up of one or more phases of contamination, has (or will) the source of petroleum been eliminated or contained?

Corrective Action Permit

Owners and operators who submit a CAP to DEQ must obtain a Corrective Action Permit for the actions outlined in the CAP (9 VAC 25-580-290). A CAP Permit may take one of several forms depending upon the type of corrective action planned for the site. Tank owners or operators undertaking corrective actions involving a point source discharge to surface waters are required to have a General VPDES Permit for Discharges from Petroleum Contaminated Sites (9 VAC 25-120-10 et seq.) or a VPDES Permit (9 VAC 25-30-10 et seq.) for that discharge. Corrective actions not involving a point source discharge to surface water may be permitted simply by a letter from the regional Remediation Manager or the Compliance and Enforcement Manager to the owner or operator stating that corrective actions outlined in the approved CAP may be undertaken. The regional Case Manager may issue the letter Corrective Action Permit if the Remediation Manager or Compliance and Enforcement Manager is away from the office for greater than one day.

Steps involved in obtaining a permit for corrective action involve submission of a CAP to the Regional Office, Regional Office review of the CAP, public notice, and approval of the CAP by DEQ. Discussed in the sections below are permits required for different types of corrective actions and the public notice process.

NOTE: A Local Government Ordinance Form (LGOF) was formerly required as part of the CAP approval process. Senate Bill 763 removed the requirement for the LGOF from State Water Control Law. This bill amends Section 62.1-44.15:3 of State Water Control Law by removing the requirement that applicants for a DEQ water permit provide a LGOF.

5.7.3.1.1 Cancellation of Corrective Action/Permit

If site clean-up and risk mitigation has been achieved at a given site, the site may be monitored or closed as determined by the regional Remediation Manager or the Compliance and Enforcement Manager. The Case Manager has the authority to cancel the CAP Permit if the Remediation Manager or Compliance or Enforcement Manager is away from the office for greater than one day. Post operational monitoring is often needed to demonstrate that the corrective actions taken will maintain the remedial endpoints for the site. It is recommended that staff require post operational monitoring as part of the CAP when corrective actions involve: free product removal, the remediation of vapor phase constituents, and treatment of contaminated ground water.

Conditions at a site may change between the time that a SCR is completed and a CAP is implemented. If a previously requested CAP/Permit is no longer deemed necessary, staff may terminate the CAP/Permit request and the site may be monitored or closed as determined by the regional Case Manager.

NOTE: A CAP Permit must be issued by the Regional Office for every case where Interim Authorization has been granted. If actions taken under Interim Authorization achieve the remedial endpoints prior to the completion of the CAP, the CAP may describe actions taken under Interim Authorization and any post operational monitoring that is needed before the case may be closed.

5.7.3.1.2 Public Notice

Section 300 of the UST Technical Regulation requires UST owners or operators to provide notice to the public for all releases where DEQ is requiring a CAP. This notice may include, but is not limited to publication in local newspapers, block advertisements, publication in a state register, letters to individuals, or personal contacts. Regardless of the method(s) used, the notice must reach those members of the public directly affected by the release and/or planned corrective action.[5-4]

It is recommended that the responsible person initiate public notice during the development of the CAP. This will enable interested members of the public to review the report concurrently with Regional Staff and provide comments in a timely manner, thereby minimizing the time needed to begin CAP Implementation. The public notice published by the responsible person shall:

1. Identify the responsible person, list the location of the release, and provide a responsible person contact to answer questions regarding the release.

2. State that the DEQ is requiring the development of a CAP to address cleanup of a regulated substance at the site.

3. State the date the CAP will be provided to the Regional Office.

4. Provide the Regional Office address and telephone number and the name of the regional Case Manager or representative who may be contacted for additional information. The notice should also direct interested persons to send all written comments to the regional Case Manager or other designated DEQ representative.

[5-4] Persons considered directly affected by the release and/or corrective action include adjacent property owners and all other persons whose ground water and/or property have been contaminated as a result of the release.

5. Establish the date by which the Regional Office will accept written comments. This date must be a minimum of 30 days after the CAP is submitted to the Regional Office.

6. State that the Regional Office may hold a public meeting if there is significant public interest.

Please see Appendix S for a sample Public Notice.

In addition to the elements listed above, staff should consider the following recommendations when directing the responsible person to proceed with public notice:

1. If the notice will be published in a newspaper, it should be published at least once per week for two consecutive weeks, thereby, increasing the opportunity for interested members of the community to observe the notice.

2. Newspapers utilized for public notice should have a general circulation within the area affected by the release.

3. Persons affected by the release or proposed corrective actions should be contacted directly (e.g. by letter).

The Regional Office shall hold a public meeting to consider comments on the proposed corrective action if the Regional Director determines that there is a significant public interest or for any other appropriate reason. Prior to holding the public meeting, the Regional Office shall:

1. Review the CAP.

2. Determine that the CAP is complete.

3. Allow any person who requests, an opportunity to review the complete CAP prior to the public meeting.

If a public meeting is held, the Regional Director (or his/her designated representative) is responsible for facilitating the meeting. Persons attending the meeting should be encouraged to sign an attendance list provided by DEQ so that they may be provided with a summary of the meeting and staff recommendations. Within 14 days after the public meeting, a memorandum must be prepared for the Regional Director's approval. This memorandum shall summarize the significant issues identified at the public meeting and contain staff recommendations regarding issues that must be addressed in order to complete the CAP. After the Regional Director approves staff recommendations, staff may proceed with the processing of the CAP and CAP Permit. The Regional Office shall provide a copy of the memorandum summarizing the meeting and staff recommendations to all persons who attended the meeting.

Occasionally a responsible person will modify the corrective action approach at a site *after* going through the required public notice process. This action often prompts the DEQ staff to question whether the responsible person should be required to provide a second public notice. The critical elements that staff

should consider when evaluating the need for additional public notices during the corrective action phase are related to endpoints and receptors. According to the UST Technical Regulation, the responsible person must provide public notice when corrective actions do not achieve cleanup levels specified in the CAP and DEQ is considering termination of corrective action at the site. The intent of this requirement is to allow impacted and/or interested persons to know of and provide comments on proposed remedial endpoints for the site. Staff should require the responsible person to provide additional public notice if remedial endpoints are changed from those in the original, approved CAP and DEQ is considering the approval of these new endpoints.

The UST Technical Regulation also stipulates that the responsible person must provide public notice to persons directly affected by the release or planned corrective action. The intent of this part of the public notice requirement is to inform persons impacted or potentially impacted by the release or planned corrective action that corrective action will be taking place. When the corrective action approach is modified after CAP approval, but remedial endpoints are not changed, the decision to provide additional public notice should be based upon an evaluation of persons impacted or potentially impacted by the contaminants and persons impacted or potentially impacted by the corrective action. If the change in corrective actions at a site may affect persons not notified originally, the responsible person must ensure that these persons are notified of the planned corrective actions. If the change in corrective action technology or approach will not cause a change in persons affected by the contaminants or corrective action, the RP is not required to provide additional notice to the public.

NOTES:
1. If persons provided comments during the original public notice period, staff may, in the interest of public relations, recommend that the RP notify the persons who commented during the original public notice/comment period of the proposed corrective action changes.
2. Public notice is not needed following a change in remedial technology at a site unless: (a) the remedial endpoints are changed; or (b) individuals not notified as part of the original public notice may be impacted by the new corrective actions.

5.7.3.2 Corrective Action Procedure for Exempt USTs, Excluded USTs, and ASTs

At the present time, regulatory guidelines do not exist for corrective action procedures for exempt USTs, excluded USTs, and ASTs. Article 11 (exempt USTs and ASTs), on the subject of corrective action states:

> "any person discharging or causing or permitting a discharge of oil into or upon state waters... shall, immediately upon learning of such a discharge or threat of discharge implement any applicable oil spill contingency plan approved under this article or take such other action as may be necessary to contain and clean up such a discharge..."

The Powers and Duties section of Article 9 gives the board the authority to:

> "Require the owner or operator of an underground storage tank to undertake corrective action for any release of petroleum or any other regulated substance..."

This provides DEQ with the authority to require the cleanup of releases of regulated substances and

petroleum from USTs that are excluded from the requirements of the UST Technical Regulation.

Procedures used for administering corrective actions for tanks regulated by the UST Technical Regulation are considered applicable to releases from other types of storage tanks and will usually be used by staff for releases from exempt and excluded USTs and ASTs. Corrective Action Plans are believed to be appropriate and necessary for describing proposed remedial activities and, therefore, will usually be requested by DEQ when corrective actions are needed for releases from exempt and excluded USTs and ASTs.

In contrast with the UST Technical Regulation (9 VAC 25-580-10 et seq.), there are no requirements for owners or operators of exempt USTs, excluded USTs, and ASTs to have a corrective action permit prior to initiating corrective action. Corrective actions for tanks not subject to the requirements of the UST Technical Regulation will usually be approved by a letter from the regional Remediation Manager or Compliance and Enforcement Manager stating that the Regional Office concurs with the CAP and that corrective actions may be initiated. This letter may be important in the reimbursement process and may serve as additional documentation that the Regional Office was involved in the decision making process and concurred with the proposed corrective actions.

Proposed corrective actions involving a point source discharge to surface water may be approved under the General VPDES Permit for Discharges from Petroleum Contaminated Sites. Many petroleum bulk facilities already have an individual VPDES permit and the existing permit may be modified to incorporate the additional discharge.

Public notice is required for corrective actions involving releases from regulated USTs, deferred USTs, or partially deferred USTs. It is not required for unregulated tanks unless a VPDES or other individual permit is required for the planned corrective action. DEQ believes that public notice is an important part of due process and may be undertaken at the discretion of DEQ or the operator. Moreover, it is highly recommended that public notice be used when the release or intended corrective actions may impact members of the surrounding community.

5.7.3.3 Non-Attainment of Endpoints

Throughout the corrective action implementation process, the progress of remediation should be continually monitored and the assumptions, based on modeling, risk, etc., should be continually assessed. If the chosen corrective action is not adequately addressing or reducing risks, alternative corrective actions should be considered. Where remedial endpoints may be achieved by continuance of the current mode of remediation, the plan should be continued. Where it is shown that alteration or changing the plan would be more effective, that course should be followed. If no reasonable additional action is deemed sufficient to complete the cleanup, monitoring of the receptor, AWS, or other alternatives should be considered.

Corrective actions not meeting remedial endpoints set forth in the CAP must be evaluated before the permit may be terminated and case closure may be granted. Section 300 of the UST Technical Regulation requires the UST owner or operator to provide public notice if implementation of the approved CAP does not achieve the remedial endpoints specified in the approved CAP and termination of the CAP is being

considered by DEQ.

5.7.3.4 Bidding Corrective Action Implementation

Bidding was developed by DEQ as a mechanism to assist owners/operators with controlling costs for release response and corrective action at sites with access to the VPSTF. VPSTF procedures require the owner or operator to complete a competitive bidding process for certain types of costs associated with Corrective Action Plan implementation. Bidding is required during the Corrective Action Plan Implementation phase for materials and equipment not listed in the UCR Tables and costing more than $500. Staff should see Section 4.6 for additional information about bidding procedures. Responsible persons and consultants seeking additional information about bidding should refer to the VPSTF Reimbursement Guidance Manual.

5.8 MONITORING WELL ABANDONMENT

DEQ and the State Health Department reached an agreement whereby DEQ will oversee the abandonment of monitoring wells installed as a requirement of either Article 9 or Article 11 of State Water Control Law. The goal of well abandonment is to prevent surface contamination from reaching ground water via the well.

Monitoring wells must be abandoned either in accordance with Section 3.11 of the State Health Department Well Abandonment Regulations or other requirements established by DEQ. DEQ staff may use the following guidelines when overseeing well abandonment:

1. *DEQ regional staff have the option to decide whether monitoring well abandonment should be a case closure criteria.*
   If staff decide that case closure should be tied to monitoring well abandonment, staff should advise the responsible person that the case will be closed as soon as the AAF for well abandonment is signed by the Regional Office. When the 198 UCRs apply to the phase of activities under which monitoring wells will be abandoned, Task Codes T082 through T084 should be used this activity. If earlier UCR schedules apply to the phase, monitoring well abandonment activities other than grouting are reimbursable on a time and materials basis. Grouting is reimbursed in accordance with "M" codes 602 through 607.

2. *Surface completion components of the well including the vault, manhole, and riser should be removed.*

3. *Well casing should be removed below grade where it is unlikely to be exposed at the surface in the future.*

4. *The well must be filled and grouted.*
   Deep wells (in this case, wells extending to a depth of greater than 20 feet below grade)

must be grouted from grade to at least 20 feet below grade. The remainder of the deep well must be filled with grout or another inert material. Shallow wells (wells that are 20 feet or less in depth) must be grouted from grade to the well's terminal depth.

NOTE: It is recommended that a bentonite/grout mixture be used to improve the sealing properties of the well filling material.

A fact sheet for monitoring well abandonment is provided in Appendix C.

5.9 The Relationship Between the Storage Tank Program and the Voluntary Remediation Program at Leaking Storage Tank Sites

5.9.1 Summary of Voluntary Remediation Program

The Commonwealth of Virginia established a Voluntary Remediation Program (VRP) to allow owners, operators, or those persons interested in a contaminated property to voluntarily remediate releases of contaminants. Sites are eligible for participation in the VRP if: (1) remediation has not clearly been mandated by the EPA, the DEQ, or a court pursuant to CERCLA, RCRA, the Virginia Waste Management Act, the Virginia Water Control Law, or other applicable statutory or common law; or (2) jurisdiction of the statutes listed in clause 1 have been waived (9 VAC 20-60-30.C). After a VRP participant completes remediation under the VRP, the DEQ issues a "Certification of Satisfactory Completion of Remediation" to the person cleaning up the site. This certificate provides immunity to enforcement action under Virginia Law, but is dependent upon the identification of the nature and extent of contamination presented to DEQ.

5.9.2 Interface Between the Storage Tank Program and the Voluntary Remediation Program

The investigation and remediation of petroleum or regulated substances released from regulated USTs and the cleanup of oil discharges required under Article 11 of Virginia Water Control Law will be overseen by the DEQ Storage Tank Program. Responsible persons or other individuals wishing to obtain a "Certification of Satisfactory Completion of Remediation" from the VRP may enroll in the VRP only **after the Storage Tank Program has closed the case**. The DEQ will not accept enrollment into the VRP while the case is still active (open) under Articles 9 or 11 of Virginia Water Control Law. Persons wishing to enroll in the VRP after receiving a case closure letter from the Storage Tank Program must be aware that: (1) additional site characterization and/or remediation may be required by the VRP before a certificate is issued; and (2) **none of the costs incurred for work performed under the VRP are eligible for reimbursement from VPSTF**.

6.0 MANAGEMENT OF PETROLEUM CONTAMINATED MEDIA

Petroleum contaminated wastes are often generated during storage tank closure, site characterization, and corrective action. These materials may also be generated during construction or property development activities. The purpose of this section is to discuss the regulatory and statutory requirements and provide general guidance for managing and handling petroleum contaminated media. Please keep in mind that the guidelines for managing contaminated media discussed in this manual are only for petroleum contaminated materials and do not apply to petroleum contaminated materials mixed with a listed hazardous waste or meeting the definition of a hazardous waste.

6.1 MANAGEMENT OF PETROLEUM CONTAMINATED WATER

During the course of tank closure, site characterization, and corrective action it is often necessary to deal with petroleum contaminated water. Article 1 of State Water Control Law (Section 62.1-44.5) states: "Except in compliance with a certificate issued by the Board, it shall be unlawful for any person to (1) discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances,.." Persons discharging sewage, industrial wastes, or other wastes into or adjacent to state waters are required by 9 VAC 25-30-50.A of the Permit Regulation to have a VPDES or VPA permit for that activity. Persons discharging petroleum contaminated water to surface water via a point source are required to obtain coverage under a VPDES permit for those discharges. In most instances, point source discharges of petroleum contaminated water may be permitted by the General VPDES Permit for Petroleum Contaminated Sites (Petroleum Discharge General Permit). If regional staff believe that an individual permit is more appropriate than the general permit for a discharge, staff have the option of the tank owner/operator to seek an individual VPDES permit.

DEQ realizes that these requirements present difficulties for conducting and completing certain types of site characterization activities (e.g. aquifer testing) in a timely and cost effective manner. In order to promote more timely and cost effective site characterizations, DEQ has developed procedures for the on site land application of contaminated water which provide increased flexibility in the handling and disposal of this material.

6.1.1 Land Application of Petroleum Contaminated Water

Water contaminated by leakage from petroleum storage tanks may be applied to land at the site if the conditions outlined below are followed. In all instances, it shall be the sole responsibility of the tank owner or operator to either provide adequate treatment of the petroleum contaminated water or certify that such water is not contaminated above specified thresholds prior to land application on site.

Criteria for on site land application of ground water

1. The Regional Office must be notified prior to the land application of ground water near a drinking water supply well.

2. The purged ground water must not discharge to any storm sewer or surface waters.

3. The purged ground water must be applied to the land in such a way that it will infiltrate over the delineated dissolved phase plume, as best as known, and within the property boundaries of the site, preferably near the point of origin.

4. There must be no presence of liquid phase hydrocarbons, including a sheen or emulsion on the purged ground water.

5. The purged ground water may not be land applied during saturated or frozen ground conditions.

6. All actions taken must be described in the respective report toward which they occurred.

Criteria for on-site land application of large waste water discharges (e.g. water from aquifer tests and tank pit dewatering). These criteria are required in addition to 1 - 6 listed above.

7. In all instances, water samples from the appropriate location(s) must be collected and analyzed prior to discharging that material. The quality of water to be land applied shall not exceed the Petroleum Discharge General Permit requirements for freshwater as indicated in Tables 6-1 and 6-2. It is important to note that these standards are ambient water quality criteria used for the protection of aquatic life and are not meant for protecting human health. These criteria, therefore, should not be applied where humans may come into contact with the waste water. Acceptable concentrations of individual constituents must be considered on a case by case basis when humans may come into contact with the waste stream. In all cases, human receptors should be exposed to no more than a 1×10^{-6} excess lifetime cancer risk from contact with the constituent(s) being released. The hazard index for exposure to non-carcinogenic constituents may not exceed a value of one.

8. Water discharged onto the land must be sampled at least once every eight hours of the discharge activity. Turn-around time for analysis should be 24 hours or next business day. If sampling confirms that concentrations of dissolved constituents exceed the concentrations listed in Tables 6-1 and 6-2, the discharge must cease until these discharge limits can be maintained.

9. Samples should be analyzed for the appropriate constituents of concern using EPA/DEQ approved methods or, for these purposes only, on-site immunoassay tests.

10. All records of the disposal and testing should be maintained by the responsible person until the case is closed.

After initiating the land application of petroleum contaminated water, the responsible person must immediately notify the Regional Office of failure to meet or maintain any of the conditions listed above. The Case Manager will then determine the appropriate course of action. In all instances, the land application of large volumes of petroleum contaminated water (usually from aquifer tests and tank pit dewatering) must be stopped if the effluent exceeds the limits specified in Tables 6-1 and 6-2. Moreover, these discharges may not be re-started until the responsible person is capable of maintaining the discharge limits.

Table 6-1. Discharges Containing Gasoline Constituents

Constituent	Maximum Discharge Level
Benzene	50 µg/l
Toluene	175 µg/l
Ethylbenzene	320 µg/l
Total Xylenes	82 µg/l
PH	6.0 - 9.0 (standard units)
Total Recoverable Lead[1]	$e^{(1.273(\ln \text{hardness}))-4.705}$ [2]

[1]Required only if fuel is leaded;
[2]Hardness of the effluent

Contaminant concentrations were taken from the effluent limitations listed in the Petroleum Discharge General Permit

Table 6-2. Discharges Containing Constituents from Fuel Oil, Kerosene, Jet Fuel, and Diesel

Constituent	Maximum Discharge Level
Naphthalene	62 µg/l
Total Petroleum Hydrocarbons	15 mg/l
pH	6 - 9 (standard units)

Contaminant concentrations were taken from the effluent limitations listed in the Petroleum Discharge General Permit

6.1.2 General VPDES Permit for Petroleum Contaminated Sites

The General VPDES Permit for Petroleum Contaminated Sites (9 VAC 25-120-10 et seq.) became effective on February 24, 1998, and replaced the CAP General Permit. The General VPDES Permit for Petroleum Contaminated Sites (Petroleum Discharge General Permit) may be used to authorize point source discharges of petroleum contaminated water to surface water. Discharges that may be granted coverage under this permit include: tank pit dewatering, purging ground water monitoring wells, aquifer testing, hydrostatic testing of petroleum storage tanks and pipelines, ground water recovery associated with the recovery of free product, or discharges resulting from another petroleum product cleanup activity approved by DEQ.

The Petroleum General Permit applies only to discharges of petroleum contaminated water. This permit cannot be used for wastewater streams that would be considered hazardous wastes under the Virginia Hazardous Waste Management Regulations.

6.1.2.1 Procedures for Granting Coverage Under the Petroleum Discharge General Permit

1. Regional staff identify discharges from a petroleum contaminated site that should be permitted under the Petroleum Discharge General Permit. Alternatively, persons wishing to discharge petroleum contaminated water may request coverage under this general permit.

2. Storage Tank Program Staff should send the following to the permit applicant:
   A. a letter directing the discharger or permit applicant to complete the Registration Statement (see Appendix E for example letter)
      NOTES: 1. The person applying for coverage under the permit should be the person that will be responsible for operating the treatment facility. In most cases, this will probably be the tank owner or operator, however, entities other that the tank owner/operator also may be the facility operator. See Section 5.4.3.2.2 for additional guidance on determining the permittee for discharges from properties near leaking storage tank sites.
      2. Staff should encourage persons applying for permits to identify and list all probable surface water discharges that may occur throughout the lifetime of release response and corrective action at the site. If the applicant fails to list a type of discharge that will subsequently occur at the site, a revised Registration Statement will have to be submitted to the regional office and coverage under the Petroleum General Permit will have to be modified in order to incorporate the additional discharge.
   B. a copy of the General Permit Registration Statement (Appendix W)
   C. instructions for completing the Registration Statement (Appendix W)

3. The permit applicant returns the Registration Statement to the Regional Office

4. The Case Manager (Storage Tank Program) performs an administrative review to ensure that the Registration Statement is complete by checking the following:
   A. all questions have been answered; only question 19 may be left blank;
   B. a topographic map meeting the requirement in question 16 is attached;
   C. a diagram of the proposed treatment system is attached; and
   D. the Registration Statement is signed and dated. Persons that may sign the Registration Statement include:
      1. A responsible corporate officer of a corporation.
      2. A general partner of a partnership
      3. The proprietor of a sole proprietorship
      4. A principal executive officer or ranking elected official of a public agency or municipality.

      For additional information, please see the Instructions for Completing the General VPDES Permit Registration Statement (Appendix W).

If any of the above are not complete, the applicant must provide the necessary information before the Registration Statement may be processed.

5. The Case Manager performs a technical review of the Registration Statement whereby the Registration Statement is evaluated for site-specific conditions that prevent coverage under the Petroleum General Permit.
   A. Determine whether the applicant is able to discharge the petroleum-contaminated water to a central sewer system. If question 17 on the Registration Statement indicates that the applicant has the option of discharging to a central sewer system, coverage should not be granted. If the sewer is present but the operator of the sewer system has denied access to the sewer, coverage may be granted under the Petroleum Discharge General Permit.
   B. Locate the proposed discharge(s) into the receiving stream by using information provided in question 10 of the Registration Statement and the attached topographic map. Identify stream basin class, section, and special standards (if applicable) for the proposed discharge location. If the receiving water is identified as a public water supply (question 8) or if a special standard for the proposed discharge location prohibits discharges, coverage cannot be granted under the general permit. If the discharge is prohibited, indicate non-acceptance at the bottom of the Registration Statement.
   C. Determine if the applicant currently holds an individual VPDES permit. If the applicant currently holds an individual VPDES permit (question 18 on the Registration Statement), anti-backsliding must be considered. Contact the regional staff in the Water Permits Program for guidance if the applicant currently holds an individual VPDES permit.
   G. Determine if the applicant plans to discharge a hazardous waste. If question 20 of the Registration Statement indicates there will be treatment or disposal of hazardous waste, coverage under the Petroleum General Permit cannot be granted.

E. Determine the type of petroleum products that contaminated the water to be discharged (question 7 of the Registration Statement). Use the following table to determine the effluent limitation page(s) to include in the permit:

Table 6-3. Effluent Limitation Page(s) to Include with the Petroleum Discharge General Permit

Characteristics of Water Body Receiving Discharge	Type of Petroleum Contamination		
	Gasoline	Non-Gasoline Products	Both Gasoline and Non-Gasoline Products
Freshwater	Part IA1	Part IA2	PartIA1 and Part IA2
Saltwater	Part IA3	PartIA4	Part IA3 and Part IA4

F. Review the attached diagram of the treatment system included with the Registration Statement along with information on the frequency of discharge (question 11), length of discharge (question 13), and flow rate of discharge (question 14). Evaluate the conceptual design to determine if the proposed treatment works should be able to treat the waste stream to meet the effluent limitations. If staff believe that effluent from the proposed treatment system will not meet the applicable effluent limitations, staff must require changes in the system before granting coverage under the Petroleum General Permit.

6. The Case Manager approves the Registration Statement

7. The Case Manager completes the bottom of the Registration Statement by:
   A. Indicating acceptance of the Registration Statement.
   B. Filling in the date.
   C. Listing the basin, stream class, section, and special standards that apply to the discharge(s) (outfalls).

8. The Case Manager assembles the permit pages
   A. Assign the permit number

   Permit numbers will be assigned by the regional office. All permit numbers will begin with the characters: VAG83. The remaining four digits are for discharge identification.

   The regions are requested to assign these four remaining numbers sequentially within the following blocks of numbers:

Southwest	0001 - 0999
Valley	1000 - 1999
West Central	2000 - 2999
Tidewater	3000 - 3999
Piedmont	4000 - 4999
Northern	6000 - 6999
South Central	7000 - 7999

If any region needs additional numbers, please contact the DEQ Technical Services Office. Regional staff should remember that the last four digits of the permit number have to be typed in on all of the permit pages (including the cover page) before the permit is mailed to the permittee.

B. Complete the Permit Cover Page

The cover page must be printed on DEQ letterhead. Staff must fill in the General Permit number and the effective and expiration dates of the Petroleum General Permit (Feb. 24, 1998, and Feb. 24, 2003, respectively).

C. Assemble Part I effluent limits pages that are applicable to the approved discharge

Staff compiling the permit package should enter the general permit number for the facility and page numbers on the top right corner of each page of the Part I effluent limits applicable to the discharge. Staff should also add outfall numbers to the end of the first sentence on each effluent limit page. Staff may list multiple outfalls on the same effluent page.

Staff have the flexibility to determine if multiple discharge activities may be considered one outfall or multiple outfalls. As a general rule, wastewater generated by different processes that is treated by a common treatment system can usually be considered one outfall.

D. Assemble Part I.B Special Conditions

Staff must print the special conditions listed in Part I.B and include this with the permit package. The general permit number for the facility and page number should be placed on the top right corner of each page.

E. Assemble Part II Conditions Applicable to all VPDES Permits

Staff should enter the general permit number on the top right corner of each page of Part II.

F. Ensure that Discharge Monitoring Reports (DMRs) are Created

DMRs must be generated for each outfall. Procedures for generating DMRs may be region specific, however, the Case Manager is responsible for ensuring that the DMRs are created and that the correct parameters and limits are included on the DMR(s). Regional staff should prepare DMRs to include the applicable limitations and monitoring requirements as listed on the Part I.A pages assigned to the outfall.

Staff must remember that DMRs are required for each outfall. Effluent limitations for each outfall must be entered into the Compliance Auditing System.

G. Write the Permit Coverage Letter

Regional Remediation Managers and Compliance and Enforcement Managers are authorized to sign General Permit Coverage Letters (see Appendix E for an example Permit Coverage Letter).

NOTES: 1. When multiple discharge activities are considered to be the same outfall, the transmittal letter should specify the discharge activity under which the monitoring samples should be collected.

2. When used oil caused or contributed to contamination at a site, the permittee is required to sample annually for semivolatile organics (SVOCs), volatile organics (VOCs), and dissolved metals. Due to present limitations of the system, CEDS cannot be used to generate DMRs indicating the annual sampling requirement for VOCs, SVOCs, and metals. When issuing coverage for discharges contaminated by used oil, staff may use the following procedure to satisfy the regulatory requirements:

a. Modify the permit transmittal letter to include the annual sampling requirement for svocs, vocs, and metals. The letter should also specify that the due date for the test results is the 10th of the month after permit coverage is issued and subsequent SVOC, VOC, and metal analyses must be submitted annually, thereafter.

b. The test results for SVOCs, VOCs, and metals should be submitted with the DMR but should not be placed on the DMR.

H. Include a copy of the Termination of Coverage Request form with the Permit Package

This form allows the permittee to request termination of coverage for the entire facility and for individual outfalls. Please see Appendix W for the Termination of Coverage Request form.

NOTE: No changes to the language of the general permit are authorized.

9. The Case Manager sends the Permit Package to the Remediation Manager or Compliance and Enforcement Manager for signature on the transmittal letter.

10. After the Remediation Manager or Compliance and Enforcement Manager signs the transmittal letter, the Case Manager provides a copy of the transmittal letter and the DMRs to the Regional Compliance Auditor.

11. The Regional Remediation Program must retain copies of all Petroleum General Discharge Permits issued in that region.

12. Transmit the Permit Package to the permittee. The Permit Package will include the following:

A. Permit Transmittal Letter

B. The appropriate effluent limitations pages with outfall numbers specified on the pages

C. Part I.B Special Conditions
D. Part II
E. DMRs
F. Permit Cover Page
G. Termination Request Form

6.1.2.2 Permittee Submittal of Discharge Monitoring Reports

Once coverage under the Petroleum Discharge General Permit has been granted, the permittee is required to submit DMRs on a monthly basis until coverage under the permit is terminated. DMRs are due on the tenth of each month and must contain monitoring results from the previous month. Permittees must remember that **DMRs must be submitted monthly for each outfall regardless of whether a discharge occurred from that outfall during the previous month**. If there was no discharge from a particular outfall during the previous month, the permittee should write "no discharge" on the DMR(s) for that outfall.

Permittees must send DMRs to the Regional Compliance Auditor by the tenth of each month. Case Managers receiving DMRs should forward them to the Compliance Auditor. Information contained on the DMR will then be entered into CEDS.

NOTE: If a permittee collects and analyzes multiple samples per month from a particular outfall, the permittee must list the highest values on the DMR and submit lab sheets for all analyses conducted with the DMR.

6.1.2.3 Permit Modification and Termination of Coverage

The addition or deletion of outfalls covered under the Petroleum General Permit may be processed as minor modifications to the existing permit. Permittees seeking permit coverage for sources or discharge activities not identified on the original Registration Statement should send an amended Registration Statement to the Case Manager. The Case Manager will:

1. Review the amended Registration Statement

2. Approve the additional outfalls (if appropriate)[6-1]

3. Ensure that DMRs are developed for the new discharge(s) (if the Regional Case Manager considers the new discharge to be a new outfall).

[6-1] Regional staff have the authority to decide whether new discharging activities should be considered new outfalls. Generally, this decision will be based upon the system that will treat water from this new activity. If petroleum contaminated water from the new activity will be treated by an existing treatment system, staff will usually consider this activity to be part of the existing outfall and no new DMRs will be needed. Conversely, if water from the new activity will be treated by a new treatment system, this new system will be considered a new outfall.

4. Provide DMRs for all new outfalls to the Compliance Auditor so that the new outfalls can be recorded in the compliance tracking and CEDS databases

5. Send a letter to the permittee indicating approval of the permit modification. DMRs for the new outfalls should be included with the letter.

Permittees may also request termination of coverage for individual outfalls or for the entire site. Permittees seeking to terminate coverage for individual outfalls or the entire site should fill out a Termination of Coverage Request form and submit that form to the Case Manager. The Case Manager will then review the termination request and approve or reject the request. Upon terminating coverage for an outfall or site, the Case Manager must inform the Compliance Auditor of this modification of the permit. The Case Manager will then send a letter confirming termination to the permittee.

6.1.2.4 Transferring Permits

Coverage under a General Permit may be transferred from one permittee to another provided that the permittee notifies DEQ at least 30 days prior to the proposed date of transfer. This notice must include a written agreement between the existing and new permittee and specify the date on which permit responsibility, liability, and coverage should be transferred from one person to the other. As long as the entity that will become the new permittee agrees to all conditions and responsibilities of the present permit, they may fill out the Permit Transfer Agreement Form (Appendix W) and submit it to the Regional Office. The regional Case Manager will review the transfer request and decide if the permit needs to be revoked, modified, or re-issued. Provided that no changes (other than changing the permittee's name, address, etc.) are needed, permit coverage is automatically transferred to the new permittee on the date requested.

6.1.3 Individual VPDES Permits

In the rare instances where the discharge cannot be granted coverage under the Petroleum General Permit, an individual VPDES permit may be issued. Individual permits will generally be used when: (1) the responsible person has specifically requested an individual permit; (2) the Regional Director determines that an individual permit is more appropriate than the General VPDES Permit due to the complex nature of the site; or (3) an individual permit is required by the Permit Regulation (e.g. an existing VPDES permittee proposes to discharge effluent through an existing VPDES outfall). Staff and the regulated community should be aware that an individual VPDES permit is required when non-petroleum regulated substances are discharged into surface water via a point source. These procedures are outlined in the OWRM (Office of Water Resources Management) Permit Manual, and will not be discussed further within this manual.

6.1.4 Re-infiltration of Treated Ground Water into the Subsurface

Depending on site conditions, responsible persons may find it advantageous to utilize the effluent from a treatment system to promote soil flushing and preclude a ground water shortage at the remediation site.

DEQ staff may approve remediation plans that call for the re-infiltration of treated water provided that the area of re-infiltration is within the defined contamination zone and the use of re-infiltration can be demonstrated to be beneficial to the overall cleanup effort. Re-infiltration cannot be used to dispose of contaminated materials and effluent from the remediation system cannot infiltrate the subsurface in areas that were previously uncontaminated.

The DEQ position is that re-infiltration performed in a manner as described above is not injection or disposal of a waste but is an integral process to site remediation. Responsible persons remediating a site under a DEQ CAP Permit and using treated ground water in the manner described above to promote cleanup at the site will not be required by the DEQ Storage Tank Program to seek an Underground Injection Control (UIC) Permit.

6.1.5 Offsite Disposal of Petroleum Contaminated Water

If wastewater cannot be reasonably treated to meet the concentrations listed in Tables 6-1 and 6-2 or there are impervious surfaces or saturated surficial soils at the site, the responsible person should consider having that water treated at an offsite facility. Facilities are available to both recycle and treat waste water/petroleum mixtures. The ratio of petroleum to water that may be recycled is decided by individual recyclers. In all instances, it is the responsibility of the tank owner or operator to obtain proper analyses of the wastewater as required by the recycling or treatment and disposal facility. Reimbursement eligibility from the VPSTF will be based upon: (1) prior approval of the activity by the Regional Office; and (2) the selection of the least expensive option which is feasible for the site.

6.2 MANAGEMENT OF PETROLEUM CONTAMINATED SOIL

The management of petroleum contaminated soil is frequently an issue during UST closure, boring and monitoring well installation, and soil excavation associated with corrective action or Phase II Initial Abatement. Petroleum contaminated soil that is actively managed meets the definition of "solid waste" under the Virginia Solid Waste Management Regulations (VSWMR; 9 VAC 20-80-10 et seq.). The VSWMR conditionally exempts the remediation of petroleum contaminated soil from the requirements of that regulation as long as the remediation is required under Article 9 or 11 of Virginia Water Control Law and no open dump, hazard, or public nuisance is created (9 VAC 20-80-60.D.5).

6.2.1 Options for the Treatment and Disposal of Petroleum Contaminated Soil

Under Virginia Law and Regulation, the responsible person has several options for managing petroleum contaminated soil that is generated during storage tank closure or release response and corrective action. Petroleum contaminated soil may be managed at the release site or another site owned by the responsible person under the auspices of the DEQ Storage Tank Program. This material also may be transported to and managed at a permitted solid waste management facility (e.g. landfill, soil treatment facility). If the material meets the requirements for clean fill, the responsible person may manage this material in

accordance with the requirements for clean fill listed in the VSWMR. The following sections discuss options that responsible persons have when treating or disposing petroleum contaminated soil and provide guidelines for each option.

6.2.1.1 Management of Petroleum Contaminated Soil at the Site Where the Release Occurred

The on-site management of petroleum contaminated soil is an option that may be considered at many sites provided that constituents within the soil do not create immediate hazards at the site. DEQ staff will use the following guidelines when evaluating requests for the management (including treatment) of petroleum contaminated soil at the location where the release occurred:

1. Above ground treatment of petroleum contaminated soil
   Petroleum contaminated soil may be treated above the ground at the release site provided that:
   A. Risks from constituents in the soil are evaluated and do not exceed applicable risk management thresholds at any time during the corrective action process;
   B. The responsible person develops a CAP and goes through a public notice/public comment process before initiating this type of treatment;
   C. DEQ issues a Corrective Action Permit or letter authorizing this activity;

2. Placement of petroleum contaminated soil in an excavation or boring
   Petroleum contaminated soil may be returned to the excavation or boring from which it originally came or another excavation on the same site[6-2] provided that:
   A. This soil is not saturated with petroleum (Petroleum saturated soil may not be placed back in a boring or excavation unless staff have evaluated this course of action and believe that this material is unlikely to be a continuing source of free product at the site);
   B. Constituents within the soil are not believed to create an immediate health hazard; and
   C. Risks from constituents in this soil are evaluated during the Site Characterization process.

   NOTE: Soil should not be placed in an excavation other than the one from which it originally came unless the surrounding material is also contaminated by petroleum and is more heavily contaminated than the material being backfilled.

[6-2] Interpretation of what constitutes the "same site" may pose a challenge at facilities covering large tracts of land that are owned by one RP (e.g. military bases). The DEQ Storage Tank Program staff should interpret "same site" in the case of large facilities to mean the area that can be adequately addressed by the same SCR.

3. Temporary on-site storage of petroleum contaminated soil
Petroleum contaminated soil that has been excavated, generated from borings or monitoring wells, or otherwise managed at the site must be contained until this material is properly treated or disposed. Petroleum contaminated soil may not be placed directly on the ground unless: (1) that soil meets the requirements for "clean fill" as listed in the VSWMR and no open dump, hazard, or public nuisance is created; or (2) the responsible person has received a CAP permit or Interim Authorization from the DEQ specifically authorizing the on-site treatment of that material.

With the exception of soil to be used as “clean fill”, analytical testing requirements for petroleum contaminated soil managed at the release site will be established by the Storage Tank Program staff. Soil may not be used as clean fill unless it meets the requirements of the VSWMR (see Section 6.2.2 of this manual).

6.2.1.2 Treatment and Disposal of Petroleum Contaminated Soil at Permitted Solid Waste Management Facilities

Conditions at certain sites make it more practicable and cost effective to dispose or treat petroleum contaminated soil at a facility which is permitted under the VSWMR than to treat the soil on site or offsite under the auspices of the DEQ Storage Tank Program. Responsible persons wishing to treat or dispose petroleum contaminated soil at permitted solid waste management facilities are required to characterize the soil in accordance with: (1) Section 700 of the VSWMR; or (2) the permit requirements of the facility at which the soil will be treated or disposed (i.e. the RP must contact the facility operator to determine what analyses are required before the facility will accept the material). Waste characterization requirements are discussed further in Sections 6.2.3, 6.2.3.1, and 6.2.3.2 of this manual and in the Guidelines for Special Waste Disposal (Appendix T).

6.2.1.3 Offsite Treatment of Petroleum Contaminated Soil at Facilities Owned and Operated by the Responsible Person

DEQ recognizes the technical viability and cost effectiveness that may potentially be achieved by remediating petroleum contaminated soil at offsite properties that are owned by the tank owner or operator. Staff should use the following guidelines when considering the offsite treatment of petroleum contaminated soil at sites that are owned by the tank owner or operator and that are not permitted by the VSWMR:

1. If possible, soil should be remediated at the site where the release occurred rather than offsite. This will reduce the possibility of contaminating a previously uncontaminated site.

2. Soil treated at a site other than where the release occurred must be treated until it meets the standards for clean fill in accordance with Section 700.D.6 of the Solid Waste Management Regulations (see Section 6.2.2 of this manual). The reason for this is that contaminated material has been moved from a contaminated site to one that presumably is

not contaminated.

3. The treatment of petroleum contaminated soil at a site owned by the tank owner or operator is a type of corrective action. It is DEQ's position that a public notice process must be used before soil is taken to or treated at a site which is not permitted pursuant to the VSWMR. Once at such a site or facility, the soil must be managed in such a way that no open dump is created.

4. A CAP must be developed and the DEQ must issue a CAP Permit or letter authorizing soil treatment at a site that does not have a waste permit before the tank owner or operator may proceed with this type of corrective action.

The criteria listed below have been compiled from the VSWMR and deal with the evaluation of open dumps and the proper handling of clean fill. It is recommended that staff consider these criteria when evaluating sites owned by the responsible person and not permitted under the VSWMR for suitability for the treatment of petroleum contaminated soil.

1. The treatment activity should not be located in a floodplain or in any way restrict the flow of the base flood, reduce the temporary water storage capacity of the floodplain (100 year floodplain), or result in washout of solid waste.

2. The treatment activity at a site should not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife.

3. The treatment activity at a site should not cause a discharge of pollutants to state waters.

4. The treatment activity should be located at least 100 feet from any regularly flowing surface water body;

5. The treatment activity should be more than 500 feet from any well or source of drinking water.

6. The treatment activity should be more than 200 feet from a residence, school, hospital, nursing home, or recreational park.

6.2.1.4 The Offsite Treatment or Disposal of Petroleum Contaminated Soil at Sites Neither Owned by the Responsible Person nor Permitted Pursuant to Virginia Law and Regulation

Petroleum contaminated soil (soil contaminated by petroleum and not meeting the requirements for clean fill) may not be treated at a site that is owned by someone other than the UST/AST owner or operator unless that site has the appropriate solid or hazardous waste management permit. The issue of who owns the site on which treatment takes place is critical as to whether that treatment may be permitted under a

Corrective Action Permit. A Corrective Action Permit authorizes the UST owner or operator to conduct corrective actions specified in an approved Corrective Action Plan. If soil is treated at a site that is owned by someone other than the UST owner or operator, the UST owner or operator does not have ultimate control over that property and, therefore, does not have the ultimate control over corrective actions performed on that property.

6.2.2 Requirements for Clean Fill

Petroleum contaminated soil meeting the following testing and disposal requirements (Section 700 of the VSWMR) may be used as clean fill:

Testing Requirements for Clean Fill

Petroleum Testing

- TPH concentration of less than 50 mg/kg
- Total BTEX concentration of less than 10 mg/kg

Hazardous Waste Testing

- Pass EPTOX testing (for regulated, deferred, and partially deferred USTs) or Pass TCLP (for all other sources of petroleum contamination)
- Total Organic Halogen (TOX) concentration is less than 100 mg/kg

Staff should be aware that responsible persons may use their knowledge of the waste and declare a waste non-hazardous without having to test that material by TCLP/EPTOX or TOX. Persons wanting to dispose of petroleum contaminated soil as clean fill can usually certify that the soil is non-hazardous if the sole source of contamination is an unleaded motor fuel, fuel oil, or unused motor oil and the total BTEX concentration in that soil is less than 10 mg/kg. Unleaded motor fuels, fuel oils, and unused motor oil are not expected to contain significant concentrations of metals or halogenated compounds, nor are they expected to contain pesticides. Soils contaminated solely by these petroleum products, therefore, would not be expected to fail TCLP or EPTOX for metals, halogenated compounds, or pesticides. If the benzene concentration in the soil is less than 10 mg/kg, that soil would not be expected to fail TCLP for benzene because a 20:1 dilution factor is used in that procedure.

Disposal Requirements for Clean Fill

Clean fill must be disposed in accordance with the following requirements (Section 700 of the VSWMR):

1. Clean fill may not be disposed closer than 100 feet from any regularly flowing surface water body;

2. Clean fill may not be disposed less than 500 feet from any well or source of drinking water.

3. Clean fill may not be disposed within 200 feet of a residence, school, hospital, nursing home, or recreational park.

4. If the soil is disposed on a property not owned by the generator, the generator must notify

the property owner that the soil is contaminated and disclose the nature of the contamination.

6.2.3 Waste Characterization Requirements for Disposal/Treatment at a Permitted Waste Management Facility

Petroleum contaminated soil that is treated or disposed at a permitted waste management facility must be tested in accordance with the waste characterization requirements of the Virginia Solid and Hazardous Waste Management Regulations. Part VI of the Virginia Hazardous Waste Management Regulations requires any person who generates a solid waste to determine if that waste is a hazardous waste. Persons who generate solid wastes may determine whether this waste is hazardous by either: (1) testing the waste; or (2) applying knowledge of the hazardous characteristics of such wastes. The testing requirements for hazardous waste for petroleum contaminated soil must be performed in accordance with Section 700.C of the VSWMR.

6.2.3.1 Analytical Testing Requirements for the Disposal/Treatment of Petroleum Contaminated Soil at a Permitted Solid Waste Management Facility

The VSWMR require that one composite sample be collected for every 100 cubic yards of soil to be disposed and analyzed for the following parameters:

1. Paint Filter Liquids by EPA Method 9095;

2. Total Petroleum Hydrocarbons by EPA Method 8015B;

3. The concentration of benzene, toluene, ethylbenzene, and xylene by EPA Method 8021B;

4. Total Organic Halogens (TOX) in accordance with test methods in EPA SW-846 (EPA Method 9020B or 9022); and

5. Soil contaminated by leakage from a regulated, deferred, or partially deferred UST shall be tested for EP toxicity by EPA Method 1310. If the tank contained motor oil (used oil), the testing may be limited to heavy metals. Leakage from tanks containing all other types of petroleum shall be tested for lead and any other compound covered by the test and known to be present.

or

6. Soil contaminated by leakage from any source other than a regulated, deferred, or partially deferred UST shall be tested by the Toxicity Characteristic Leaching Procedure (TCLP).

Note: Petroleum contaminated soil that is treated under a CAP Permit is conditionally exempt from the Solid Waste Management Regulations. Testing requirements for soil that will be treated under the CAP shall be specified in the CAP Permit.

6.2.3.2 Application of Knowledge of Waste in Lieu of Testing

As an alternative to analyzing the waste prior to disposal, the person generating the waste may apply his/her knowledge of the hazardous characteristics of the waste based on the materials and processes involved (See 9 VAC 20-60-340.D.2 of the Virginia Hazardous Waste Management Regulations) and certify that the waste is not hazardous. With regards to petroleum contaminated soil, the person generating the waste can usually certify that a waste is non-hazardous as long as the sole source of contamination is an unleaded motor fuel (see section 1.2 for a definition of motor fuel), fuel oil, or unused motor oil from a regulated, deferred, or partially deferred UST.

Providing a certification that petroleum contaminated soil is non-hazardous is more difficult when the source is not a regulated, deferred, or partially deferred UST. The reason for this is that sources other than regulated, deferred, or partially deferred USTs are subject to the complete testing requirements of TCLP. Persons wanting to dispose of soil that was contaminated by petroleum from sources other than regulated, deferred, or partially deferred USTs can usually certify that the soil is non-hazardous if the sole source of contamination is an unleaded motor fuel, fuel oil, or unused motor oil and the total BTEX concentration in the soil is less than 10 mg/kg. Unleaded motor fuels, fuel oils, and unused motor oil are not expected to contain significant concentrations of metals and halogenated compounds, nor are they expected to contain pesticides. Soil contaminated solely by these petroleum products, therefore, would not be expected to fail TCLP for metals, halogenated solvents, or pesticides. If the benzene concentration in the soil is less than 10 mg/kg, the soil would not be expected to fail TCLP for benzene because a 20:1 dilution factor is used in that analytical procedure.

Persons applying knowledge of a waste in lieu of testing should be aware that operators of treatment or disposal facilities might not accept wastes without analyses. It is recommended that responsible persons wishing to pursue this option contact the facility where the waste will be disposed and/or treated in order to determine if a certification that the soil is not hazardous will be acceptable.

NOTE: Petroleum contaminated media and debris from USTs subject to the corrective action requirements of the UST Technical Regulation (i.e. regulated, deferred, and partially deferred USTs) are exempt from the TCLP testing requirements for constituents D018 through D043 (organics; Virginia Hazardous Waste Management Regulations 9 VAC 20-60-110.B.10). Petroleum contaminated media and debris from sources other than regulated USTs do not enjoy this exemption and persons generating these wastes may have a greater difficulty certifying that the waste will not fail TCLP for one or more of the organic constituents (e.g. benzene).

6.2.4 Management of Petroleum Contaminated Soil at VDOT Road Construction Sites

During the course of constructing and maintaining roads, the Virginia Department of Transportation (VDOT) often encounters petroleum contaminated soil. DEQ and VDOT reached an agreement whereby VDOT may excavate petroleum contaminated soil and stockpile that material near the excavation in order to complete a maintenance or installation project. Upon completion of the project, VDOT may re-deposit this soil in the excavation from which it originally came without triggering the requirements of the Solid

and Hazardous Waste Management Regulations. VDOT may not place petroleum saturated soil back in the excavation nor may the excavation of soil interfere with ongoing corrective actions. When petroleum contaminated soil is encountered during a road construction project, VDOT also needs to advise the appropriate DEQ regional office so that DEQ may ensure that the release has been or will be evaluated.

Amendment 2 to the Solid Waste Management Regulations (effective date May 23, 2001) allows persons excavating non-hazardous petroleum contaminated soil to use that material as backfill in the original excavation or other excavations at the same site provided that the surrounding materials contain similar contaminants at equal or greater concentrations (9 VAC 20-80-150E.2.a(4)). This exemption to the requirements of the Solid Waste Management Regulations may allow VDOT additional flexibility when managing petroleum contaminated soil at road construction sites.

NOTE: Utility companies performing maintenance or installation work along a right of way may manage petroleum contaminated soil as described above.

6.2.5 Petroleum Contaminated Soil at Sites Closed by the DEQ Storage Tank Program

Remedial endpoints at leaking storage tank sites are based upon risks to known receptors at the time that the site is characterized and corrective actions are undertaken. Closure of a leaking storage tank case by DEQ does not guarantee that all contamination has been removed from the site. Persons developing or otherwise working on sites that formerly contained leaking storage tanks may find contaminated materials. Persons encountering petroleum contaminated soil at sites that have been evaluated and closed by DEQ have the following soil management options:

1. place the soil back in the excavation from which it came

2. place it in another excavation on the same site provided that the surrounding material is also contaminated by petroleum at equal or greater concentrations than the backfill (see 9 VAC 20-80-150E.2.a(4));

3. manage the material as clean fill if it meets the clean fill requirements (see Section 6.2.2); or

4. treat or dispose of the material at a permitted waste management facility.

The DEQ Storage Tank Program will become involved when a site owner encounters petroleum contaminated soil and a release has never been reported to DEQ. In this type of case, Storage Tank Program Staff must first determine if a release has occurred. If staff believe that a release has occurred, the RP must be determined and release response and corrective action must be initiated.

The DEQ Storage Tank Program has the ability to re-open cases should the need arise. DEQ is likely to re-open cases only in those instances where: (1) recoverable free product is encountered; or (2) risks to a receptor exceed our risk management thresholds and the receptor and pathway were present at the time of Site Characterization.

NOTE: If a site owner encounters petroleum contaminated soil and is unsure whether DEQ has evaluated a release at that site, that person must contact DEQ.

6.3 EMISSION OF PETROLEUM CONSTITUENTS INTO THE ATMOSPHERE RESULTING FROM A RELEASE AND REMEDIATION

Petroleum releases and the clean up of petroleum releases may cause the emission of petroleum constituents into the atmosphere. There are two basic issues that must be considered regarding the emission of petroleum vapors following a release and during the ensuing clean up. The first issue that must be addressed is whether the vapor emission is sufficiently large as to require a permit for that emission. The second issue involves determining whether the emissions pose unacceptable risks to specific receptors. These two issues must be considered because air permit requirements are not based upon site specific conditions and do not consider risks to individual receptors.

6.3.1 Air Discharge Permitting Requirements

Petroleum constituents may be released into the atmosphere as a result of activities related to cleaning up petroleum releases. Examples of vapor emitting remedial activities include soil aeration, vapor extraction, air stripping, and soil incineration. Soil incinerators are often used to remove petroleum constituents in soil. All incinerators must have a permit prior to operation (see 9 VAC 5-80-10 and 9 VAC 5-80-11). Additional permits for individual incinerators are not required when an incinerator is relocated provided that a permit for that incinerator has already been granted under 9 VAC 5-80-10.A.3 and:

1. emissions from the unit at the new location would be temporary;

2. emissions from the unit would not exceed its allowable emissions;

3. the unit would not undergo modification of reconstruction;

4. the unit is suitable to the area in which it is located; and

5. reasonable notice (not less than 15 days) is given to the appropriate DEQ Air Regional Office prior to relocation.

Responsible persons conducting corrective actions involving the discharge of constituents to the atmosphere may need to obtain a permit for those discharges. The primary constituents which will determine whether an air permit is needed for corrective action are volatile organic compounds (VOCs), toxic pollutants[6-3], and lead. Facilities having volatile organic compound (VOC) emission rates less than 10 tons per year and lead emission rates less than .6 tons per year are exempt from permitting 9 VAC 5-80-11. Exemption levels for toxic pollutants are based on threshold limit values (TLVs , please see Appendix U for TLV definitions). Facilities with an uncontrolled emission rate of a toxic pollutant equal to or less than the exempt emission rate calculated by using the exemption formulas for the applicable threshold limit value shall be exempt from permitting requirements 9 VAC 5-80-11. If more than one exemption formula applies to a toxic pollutant emitted by a facility, the uncontrolled emission rate of that pollutant shall be equal to or less than both applicable exemption formulas in order for the source to be exempt for that pollutant. Please see Appendix U for the exemption formulas and threshold limit values for selected petroleum constituents.

Air emissions from petroleum liquid storage and transfer operations may be regulated (i.e. need a permit) depending upon facility throughput and storage capacity of individual tanks. As a general rule, only large bulk storage and transfer facilities (i.e. oil terminals) are required to have air permits. If a facility is required to have an air emission permit, additional emissions from petroleum clean up activities may also be covered under that permit. It is recommended that responsible persons conducting petroleum clean ups at bulk facilities contact the Air Permits section of the appropriate DEQ Regional Office if clean up activities may result in a significant emission of volatile organics, toxic pollutants, or lead into the atmosphere in order to determine if the existing permit may need to be modified.

Note: It is recommended that staff advise responsible persons who are planning to conduct vapor emitting corrective actions to contact the Air Permits staff to determine if a permit is needed for the planned activity.

[6-3] A "toxic pollutant" is defined as any air pollutant for which no ambient air quality standard has been established. Particulate matter and volatile organic compounds are not toxic pollutants as generic classes of substances but individual substances within these classes may be toxic pollutants because of their toxic properties or because a TLV has been established. Virginia Air Quality Policy No. 5 (AQP-5) contains a list of priority pollutants used in permitting.

6.3.2 Determining Risks from Air Emissions

Permit requirements for toxic constituents emitted from a petroleum release or clean up activity are based upon TLVs for individual constituents. It is believed that the use of TLVs to determine acceptable emission limits may not be protective of human health in all instances. TLVs are established with the intention of protecting workers in an occupational exposure setting and assume a 40 hour per week exposure duration and a robust worker population. The approach used to establish TLVs does not consider non-occupational exposures nor does it consider the exposure of sensitive receptors to the regulated substance. ACGIH (1993) states:

> "These limits are intended for use in the practice of industrial hygiene as guidelines or recommendations in the control of potential health hazards and for no other use, e.g, in the evaluation or control of community air pollution nuisances; in estimating the toxic potential of continuous, uninterrupted exposures or other extended work periods; ..."

Risks from the emission of constituents into the atmosphere as a result of a release must be determined as part of the Risk Assessment during the Site Characterization Phase. Owners/operators proposing to undertake corrective actions that result in the release of petroleum constituents into the atmosphere must also estimate the risks to receptors from these activities. Emissions from a particular corrective action may not require an air discharge permit and still pose unacceptable risks to individual receptors. In all cases, risks from vapor phase constituents emitted during corrective action may not exceed the applicable risk management thresholds (i.e. excess lifetime cancer risk of one in one million and a hazard index of 1).

7.0 Storage Tank Notification and Closure

Properly closing inactive or outdated storage tank systems is an important measure in preventing ongoing and/or future releases from tank systems. The procedures required for storage tank closure are variable depending upon site conditions and the set of regulations which govern the individual tank system. Due to the regulatory framework within which storage tank closure must take place, closure procedures/requirements will be discussed separately for the following types of tanks:

1. Regulated and partially deferred USTs;

2. Excluded, deferred, and exempt USTs 1 and 2;

3. Individual ASTs having a capacity of greater than 660 gallons of oil; and

4. Individual ASTs having a capacity of less than or equal to 660 gallons of oil.

Regardless of tank type, contaminated soil, free product, or other indicators of a release must be reported to DEQ and the tank owner or operator must initiate release response and corrective action.

Storage tank closure is not generally considered by DEQ to be a corrective action activity. Costs associated with storage tank removal are not, therefore, eligible for reimbursement from VPSTF under most circumstances. The exceptional case where storage tank closure costs may potentially be eligible for reimbursement is when closure is performed under Interim Authorization or the Corrective Action Permit and the activity is pre-approved by DEQ.

The highest level of soil contamination at leaking UST sites is often found in the vicinity of the tanks, lines, and dispensers and this soil is often excavated at the time of UST closure in order to remove the tank system. The DEQ recognizes that soil in the vicinity of the UST(s) typically contains a significant percentage of the total mass of regulated substance released at the site and proper disposal of this soil should be addressed as part of Initial Abatement. Although tank removal and soil excavation needed to remove the tank are not eligible for reimbursement, the Regional Office should approve the loading, hauling, and disposal of this soil (if contaminated) and backfill of the tank pit under the following conditions:

1. A release is reported to DEQ within 24 hours of discovery;

2. The UST system is eligible for reimbursement under the VPSTF (see Table 2-2); and

3. Loading, hauling, and disposal is limited to the amount of soil that was necessary to remove the UST(s). Table 7-1 lists tank capacities and maximum soil amounts to be used for approval of loading, hauling, and disposal of petroleum contaminated soil excavated during UST closure.

NOTE: Excavated soil must be sampled prior to disposal. Costs associated with managing soil classified as clean fill may not be reimbursable.

Table 7-1. Maximum Contaminated Soil Eligible for Reimbursement Based Upon UST Capacity at a Leaking UST Site

UST Capacity (Gallons)	UST Dimensions (feet)	UST Displacement (cubic yards)	UST Excavation (W x L x H, ft)	Maximum Soil Removal (yd^3 / tons)
550	4 x 6	2.7	7 x 12 x 7	19 / 28.5
1000	4 x 11	5	7 x 17 x 7	26 / 39
2000	5.5.x 12	9.9	8.5 x 18 x 8.5	38 / 57
3000	5.5.x 18	14.8	8.5 x 24 x 8.5	49 / 73.5
4000	5.5 x 24	19.9	8.5 x 30 x 8.5	60 / 90
5000	8 x 13	24.7	11 x 19 x 11	60 / 90
6000	8 x 16	29.6	11 x 22 x 11	69 / 103.5
8000	8 x 21	39.5	11 x 27 x 11	82 / 123
10000	8 x 27	49.4	11 x 33 x 11	99 / 148.5
12000	8 x 32	53.9	11 x 38 x 11	111 / 166.5
15000	10.5 x 24	74	13.5 x 30 x 13.5	129 / 193.5
20000	10.5 x 31	98.8	13.5 x 37 x 13.5	151/226.5
25000	10.5 x 38.75	124.2	13.5 x 45 x 13.5	180/269
30000	11.5 x 40	153.8	14.5 x 46 x 14.5	204 / 306

Assumptions:
1. Dimensions are for a standard sti-P3 single-walled UST
2. Displacement (cubic yards) = capacity (gallons) x 1 cubic foot / 7.5 gallons x 1 cubic yard / 27 cubic feet
3. When deriving the excavation dimensions, it was assumed that the top of UST was three feet below grade and three feet of clearance were factored in for both ends and one side.
4. Maximum soils excavated = excavation - UST displacement
5. Maximum soils excavated is for a single UST only. It is expected, in excavations containing more than one UST, that less material will be generated per UST.
6. A conversion factor of 1.5 was used to convert cubic yards to tons.

NOTE: Soil excavated during UST closure should be limited to that which is necessary to remove the UST(s). The removal of saturated soil may be justifiable, however this activity must be authorized by the Regional Office: (1) during a corrective action phase (e.g. Initial Abatement); and (2) prior to implementation, in order to be considered for reimbursement.

7.1 REGULATED USTS AND PARTIALLY DEFERRED USTS

7.1.1 Permanent Closure

The procedures contained in this section outline the requirements for closure of regulated UST systems in accordance with Sections 320 and 330 of the UST Technical Regulation 9 VAC 25-580-10 et seq. Tank owners and operators are required to permanently close all UST systems that are out of service for over one year[7-1]. Closure must be performed for the UST system and this includes the piping. If the UST will remain in service but product lines are taken out of service, the UST system owner or operator must close the lines in accordance with the UST Technical Regulation. Please note that site assessment is required even when only the product lines are taken out of service. UST system closure steps are as follows:

1. The owner or operator must contact the local building official or the building official's designee (often the fire official) and obtain a building permit to proceed with the UST closure. Inspections and site visits by the local code official must be coordinated through that official's office as required under the Uniform Statewide Building Code. A copy of the building permit must be included in the closure report.

NOTE: A representative of the Department of General Services will function as the building official for facilities owned by the Commonwealth of Virginia.

2. The owner or operator must remove all regulated substances, including sludges, from the tank. Removal of the sludges may necessitate professional tank cleaning. In all instances, it is the responsibility of the owner or operator to ensure that all steps in the tank closure process are carried out in a manner that minimizes the risk of explosion due to vapors and other hazards. The regulated substance and sludge removed from the tank must be properly disposed in accordance with the Virginia Solid and Hazardous Waste Management regulations. It is recommended that copies of disposal manifests be included in the closure report.

[7-1] When an UST system is temporarily closed for more than 12 months, the tank owner or operator must permanently close that UST system if it does not meet:

1. the performance standards for new UST systems in 9 VAC 25-580-50; or
2. the upgrading requirements in 9 VAC 25-580-60.

The tank system does not, however, have to meet spill and overfill requirements of the regulation. Owners and operators of UST systems not meeting these performance standards may request an extension of the 12 month temporary closure period from the building official. Persons seeking this extension must compete a site assessment in accordance with 9 VAC 25-580-320 before they may apply for the extension.

3. The DEQ recommends that USTs be removed from the ground if at all possible.[7-2] Where allowed by the local code official, USTs may be closed in place by filling them with an inert substance that is approved by the local code official (e.g., sand, gravel, cement slurry) subsequent to product/sludge removal and tank cleaning. Disposal manifests for the tank and piping should be included in the closure report.

4. A site closure assessment is required in all cases except where an UST has been monitored monthly with vapor detection wells or ground water monitoring wells immediately prior to closure and monitoring indicates that no release has occurred. The site closure assessment is discussed in more detail in Section 7.1.1.2. The Closure Assessment will be reviewed by the regional staff and staff may require additional information if the Closure Assessment was performed improperly or the information submitted to DEQ is incomplete.

5. Within 30 days after closure, the tank owner or operator must submit an amended UST Notification Form (Form 7530-1) for the tank(s) closed along with a Tank Closure Report to the address below. In instances where a release is reported to the Regional Office, only the UST Notification Form needs to be submitted, and a complete Tank Closure Report is not required.

Commonwealth of Virginia
Department of Environmental Quality
Petroleum Storage Tank Program
P. O. Box 10009
Richmond, VA 23240

Observation of contaminated soils or ground water or the presence of free product *must* be reported to the DEQ by the owner or operator within 24 hours. **The submittal of a tank closure report does not meet the release reporting requirement**. For additional information regarding the closure of regulated USTs, please see the Fact Sheet for UST closures which is included as Appendix C.

7.1.1.1 UST Closure Reporting Requirements

A Closure Report must be received by DEQ within 30 days after one or more regulated UST systems are permanently closed. The Closure Report must contain the following:

1. an updated UST Notification Form (Form 7530-1);

2. a copy of the building permit;

3. the UST closure assessment;

[7-2] USTs closed in place remain a potential liability to present and future land owners. For additional information, please see Chapter 3 of this document.

4. all analytical results (include a statement of the analytical method used) and chain of custody forms; and

5. a site map showing tanks, piping, and sample locations and sample depths (including depth to ground water if known).

It is recommended that copies of the applicable disposal manifests for the tank(s), soil(s), and sludges also be included in the closure report. A list of elements that must be included in an UST closure report is contained in the UST Closure Fact Sheet (Appendix C).

7.1.1.2 UST Closure Assessment

Section 330 of the UST Technical Regulation requires that the UST site be assessed at the time of closure. The purpose of this assessment is to determine if a release from the UST system occurred. As part of this assessment, the owner or operator must measure for the presence of a release where a release would most likely be detected. Since releases may occur from any portion of the UST system that routinely contains product, the owner or operator must assess the product lines and dispenser area as well as the tank basin. This assessment is required in all instances unless vapor monitoring or ground water monitoring were conducted as part of release detection up until the time of closure and monitoring indicates that a release has not occurred.

NOTE: A closure assessment is required when product lines are taken out of service independently of the UST.

Samples collected to meet the sampling requirement of Section 330 may be either water or soil depending upon the conditions of the site (product type, backfill, depth to ground water, etc.). *Soil samples taken from below the ground water table in either the tank pit or from soil borings are **not** acceptable to confirm a clean tank closure as this would not be a location most likely to indicate a release if one had indeed occurred.* Regardless of the media sampled, all samples must be collected from discrete locations. Composite samples (i.e. soil mixtures or water mixtures) are not acceptable.

NOTE: Sampling is only required to confirm that a release has not occurred. The owner or operator is not required to collect samples during closure if petroleum stained soil, free product, or other indicators of a release are observed and a release is reported to the Regional Office. Once a release has been confirmed, regional staff may direct the tank owner/operator to collect samples from the tank basin, line trenches, dispenser area(s), etc. as part of Site Characterization.

Samples collected during closure may be analyzed by any appropriate EPA or DEQ approved analytical method (see Table 5-4 for a list of approved methods). EPA Method 418.1 is not an appropriate analytical method to use for samples collected during the closure of gasoline USTs and will not be accepted by DEQ in this type of situation. Beginning on January 1, 1999, soil samples that will be analyzed by Method 8015 - GRO (gasoline range organics) must be collected using an EPA approved sampling device such as an EnCore[tm] sampler or other approved device. Method 418.1 may be used for analyzing samples collected from the vicinity of tanks that contained fuel oils #4, 5, and 6, hydraulic oil, used oil, and crude oil.

Analytical results for samples collected during UST closure that equal or exceed 100 mg/kg TPH (soil) or 1 mg/l TPH (ground water) must be reported to the Regional Office within 24 hours of receipt of the results. If the UST contained a non-petroleum regulated substance, analytical results indicating detectable concentrations of any constituent stored in that tank must be reported to the Regional Office within 24 hours.

NOTE: For additional guidance on the management of petroleum contaminated media, please see Chapter 6 of this manual.

7.1.1.3 Federal Regulation Closure Assessment Requirements

Occasionally, staff may need to review UST closure information for USTs that were closed between December 22, 1988, and October 25, 1989. When reviewing these closures, staff should be aware that the UST closure requirements in the Federal Regulation are slightly different than Virginia's requirements. According to the Preamble to the Federal UST Regulation, soil gas samples and visual inspection of the tank excavation may be sufficient to determine if a release from the UST system occurred. The Federal UST Regulation also does not require closure samples from petroleum storage tanks to be analyzed for TPH. The Federal Regulation indicates that measurement methods used for UST closure samples should be appropriate for identifying releases from the UST system.

7.1.2 Temporary Closure

The owner or operator of an UST must submit an UST Notification Form (Form 7530-1) to DEQ within 30 days following cessation of use of that UST. DEQ will consider USTs that have been out of service for 30 days or more, but not permanently closed, to be temporarily closed. When a tank owner or operator wishes to temporarily close an UST system, he/she must obtain a permit from the Building Official and the system must be inspected. All applicable maintenance and release detection methods must continue during the temporary closure period unless the UST remains empty throughout the temporary closure period. Once an UST system has been temporarily closed for three months, the product lines, pumps, manways, and ancillary equipment must be capped; the vent lines must remain open and functioning.

Substandard UST systems that have been temporarily closed for 12 months must be permanently closed or upgraded to current standards for new UST systems. The Building Official may, based upon site-specific conditions, grant an extension of the 12-month temporary closure period. Owners of substandard USTs wishing to apply for this 12-month extension must complete a site assessment in accordance with Section 330 of the UST Technical Regulation before submitting their extension request to the building official. This site assessment must be submitted to DEQ along with an amended UST Notification Form that informs DEQ that the owner of the substandard UST will seek a temporary closure extension from the Building Official.

NOTE: Although owners/operators of substandard USTs may temporarily close those tanks, DEQ recommends that all substandard USTs be upgraded or permanently closed by December 22, 1999.

7.1.3 Pre-regulation Closures

USTs taken out of service prior to December 22, 1988, are considered to be previously closed UST systems and are not subject to closure requirements of the UST Technical Regulation provided that the tank is unused and no evidence of a release exists. If these tanks are brought back into use or a release is suspected or discovered at the site, then the appropriate section(s) of the UST Regulations apply. Pre-regulation closure means the cessation of use (i.e. input or withdrawal of regulated substance from the UST). If the owner of an UST containing a regulated substance maintains that there has been no input or withdrawal of regulated substances from the UST since prior to December 22, 1988, the UST is considered closed. Any UST that was not so "closed" by December 22, 1988, must be properly closed by obtaining a building permit from the local code official and complying with the UST Technical Regulation (9 VAC 25-580-10 et seq.).

Additional measures taken by the owner or operator of an UST to close an already closed UST (e.g inerting the tank or removing the tank) are not considered DEQ-regulated UST activities unless a release is suspected or discovered (9 VAC 25-580-340). If someone wishes to take such measures, they must still obtain the required building permit and proceed as directed by the local code official.

If any evidence of a release is discovered as a result of "re-closure", then a release from the UST system must be reported and release response and corrective action must be initiated.

7.1.4 UST Notification Requirements

Owners of regulated and partially deferred USTs are required to notify DEQ when new UST systems are brought into use. These persons must also notify DEQ when there is a change in: (1) tank ownership; (2) tank status (a tank is temporarily or permanently closed); (3) the tank and/or piping system (the tank and/or lines are upgraded, release detection equipment is added); or (4) the substance stored. UST owners and owners of property containing USTs that were taken out of service before May 8, 1986, are required to notify DEQ of the existence of these tanks. Title 42, Section 6991a of the U.S. Code states:

> “For each underground storage tank taken out of operation after January 1, 1974, the owner of such a tank shall, within eighteen months after November 8, 1984, notify the state ... of the existence of such tanks (unless the owner knows the tank was subsequently removed from the ground)."

Section 70 of the UST Technical Regulation requires property owners to submit an UST Notification Form to DEQ when USTs at the site were taken out of service prior to January 1, 1974, and left in the ground. A summary of UST notification requirements is contained in Table 7-2.

Table 7-2. Notification Requirements for Regulated and Partially Deferred USTs

UST Service Dates	Person Required to Notify	Notification Deadline	Regulatory Citation
USTs brought into use after May 8, 1986	UST owner	within 30 days of bringing UST into service	9 VAC 25-580-70
USTs taken out of service between January 1, 1974, and May 8, 1986, that remained in the ground after May 8, 1986	UST owner	May 8, 1986	42 USC Section 6991a
USTs taken out of service before and remaining in the ground after January 1, 1974	Property owner	July 1, 1987	9 VAC 25-580-70

NOTES: (1) Notification must be provided on the UST Notification Form (Form 7530-1).
(2) Notification must be provided to DEQ for all USTs (except exempt and excluded USTs) present at a site regardless of whether they are currently in use. For example, even if an UST was taken out of service in 1956, the property owner must notify DEQ if this UST is currently present at the site.

7.2 CLOSURE REQUIREMENTS FOR DEFERRED USTS, EXEMPT USTS 1 AND 2, AND EXCLUDED USTS

Chapter 32 of the Virginia Building Code states that a permit is required "to install, remove, repair or alter a stationary tank for the storage of flammable or combustible liquids or modify or replace any line or dispensing device connected thereto." Persons wishing to close a home heating oil tank or other UST not regulated under the UST Technical Regulation should contact the local building official regarding the permits that are required to close that tank.

The UST Technical Regulations do not specify closure procedures for deferred USTs, exempt USTs, and excluded USTs. The tank owner or operator is not required by DEQ to collect water or soil samples as part of closure, nor is the owner or operator required to submit any type of closure notification to DEQ. If evidence of a petroleum release is discovered, the owner or operator must notify DEQ that a release has occurred and take actions as necessary to abate hazards caused by the release.

7.3 CLOSURE REQUIREMENTS FOR ASTS

7.3.1 ASTs Having a Capacity of Greater than 660 Gallons of Oil

Above ground storage tank (AST) operators wishing to close ASTs having a capacity of greater than 660 gallons of oil[7-3] must close those tanks in accordance with Section 120 of the Facility and Aboveground Storage Tank Regulation (9 VAC 25-91-10 et seq.). In order to close an AST, the AST operator[7-4] must:

1. Register the AST and pay the appropriate fee if the tank has not previously been registered (see Section 7.3.1.2 for more information on AST Registration Requirements).

   NOTE: A registration fee is not required at the time of closure if the operator has paid the registration fee for the AST or facility within 5 years prior to closure.

2. Obtain the required permits and inspections
   - A. The AST owner/authorized representative will obtain permit(s) and inspection(s) from the local code official as required by the Uniform Statewide Building Code, the BOCA National Building Code, and the NFPA Code. DEQ will then review the permits and inspection reports.

     or
   - B. Where a permit is not issued by the local code official, the AST owner/authorized representative must contact DEQ for an inspection at least 14 days prior to commencing closure operations. If the AST is operated by the Commonwealth of Virginia, the Department of General Services shall function as the local code official.

     and
   - C. If the closure is in response to containment and cleanup actions that necessitate AST removal, the AST owner/authorized representative must immediately notify the local code official and DEQ.

[7-3] ASTs located on a farm or residence used for storing motor fuel for noncommercial purposes with an aggregate storage capacity of 1100 gallons or less are excluded from the requirements of the Facility and Aboveground Storage Tank Regulation.

[7-4] Although the term "operator" includes a variety of persons (entities) who may share joint responsibility for compliance with the AST and Facility Regulation, DEQ will look first to the AST owner or duly authorized representative of the facility or AST when fixing responsibility for compliance with the registration requirement. Please see Section 100.C of the AST and Facility Regulation for additional information on who may be a “duly authorized representative”.

3. Perform closure operations including:
   A. removing all liquids, sludges, and vapors from the AST and associated piping;

      All wastes must be disposed in accordance with all applicable state and federal requirements.
   B. removing vapors and providing adequate ventilation for tanks that are closed in place;

      Vent lines must remain open and they must be maintained in accordance with applicable codes. All access openings to the tank must be secured and the AST must be secured from tampering and flooding. The name of the product last stored, the date of permanent closure, and PERMANENTLY CLOSED shall be stenciled on the AST in a readily visible location. Piping must be disconnected and all pipes closed in place must be vapor free and capped or blind flanged.
   C. assessing the site prior to completing closure operations;
      1. When assessing the AST site, the owner/authorized representative must sample and test for the presence of petroleum hydrocarbons in any areas where contamination is likely to have occurred. Sampling and testing must be performed in accordance with EPA approved methods or methods approved by DEQ (see Table 5-4).
         a. The owner/authorized representative must submit an updated registration form to DEQ along with:
            1. copies of lab results
            2. a description of the area sampled
            3. a photograph of the site indicating the areas sampled
            4. a site map indicating the location of the closed AST and piping along with sample locations and depths
         b. If contamination or other evidence of a release is discovered, the owner/authorized representative must immediately notify DEQ and initiate cleanup as required by DEQ.

            Note: Analytical results for samples collected during AST closure that equal or exceed 100 mg/kg TPH (soil) or 1 mg/l TPH (ground water) must be reported to the Regional Office upon receipt of these results. Analytical results for other petroleum constituents that exceed the detection limit for that constituent must be reported to DEQ upon receipt of the analytical results.
      2. DEQ may consider an alternative to soil sampling during closure if the AST owner/authorized representative demonstrates that:
         a. there is no evidence of past or present contamination by providing records of monthly release detection monitoring for the previous 12 months; and
         b. the facility or AST has operated an approved leak detection system.

4. have a closure inspection conducted by the local code official and provide permits and inspection reports from the local official to DEQ for review. If the local code official cannot inspect the site, the owner/authorized representative must contact DEQ at least 14 days prior to closure so that DEQ may perform an inspection.

5. maintain all records relating to compliance with the AST closure requirements for a minimum of 5 years after notifying DEQ of the completed closure.

7.3.1.1 Closure of Previously Closed ASTs

AST owners/authorized representatives who permanently closed ASTs prior to the effective date of the Facility and AST Regulation (June 24, 1998) may be required by DEQ to assess the site and close the AST in accordance with Section 120 of the Facility and AST Regulation. DEQ staff may require ASTs closed prior to June 24, 1998, to be closed in accordance with current requirements in situations where: (1) staff believe that the closure activities performed at the site may have been inadequate to prevent ongoing and/or future discharges from the AST; and/or (2) a discharge from the AST is suspected.

NOTE: DEQ will require closure documentation for AST closures performed on or after September 22, 1993.

7.3.1.2 AST and Facility Registration Requirements

Article 11 of Virginia Water Control Law (Section 62.1-44:34:19.1 of the Code of Virginia) requires the operator of a facility having an aggregate aboveground storage capacity of more than 1320 gallons of oil or an operator of an individual AST with a storage capacity of more than 660 gallons of oil to register the facility or AST with DEQ and the local director/coordinator of emergency services. Registration fees are required at the time of registration. Facilities or ASTs installed after June 24, 1998, cannot be registered until: (1) the AST owner/authorized representative obtains (from the building official) and DEQ reviews the permits, inspection reports, and certification of use required in accordance with the Uniform Statewide Building Code, the BOCA7 National Building Code, and the NFPA Code; or (2) DEQ inspects the facility or AST.

Information that must be provided to DEQ as part of AST and/or facility registration includes:

1. the facility and AST owner and operator information including the owner's/operator's name, address, and phone number(s);

2. facility information including the facility name, type, address, contact person, contact person's phone number, and aggregate storage capacity;

3. tank and piping information including storage capacity, product stored, AST type(s) and design(s), an construction standards;

4. other information that may be reasonably requested by DEQ; and

5. owner certification of information.

The AST and Facility Regulation (Section 60) requires the AST/facility operator to submit a registration fee. Registration fees are required for:

1. initial registration;

2. new installations;

3. conversion (e.g. an UST is converted to an AST, the product stored in an AST changes from a non-oil product to an oil product);

4. ASTs brought back into use after permanent closure;

5. registration renewal (required every five years or when title to the AST and/or facility is transferred); and

6. the transfer of title to a facility (change in ownership).

Fees are required for initial AST registration and AST registration renewal. AST owners/authorized representatives should send the AST Registration Form (DEQ Form 7540-AST) or the AST Registration Renewal Form (DEQ Form 7541-AST) along with the appropriate fee to:

Virginia Department of Environmental Quality
Office of Financial Management
P.O. Box 10150
Richmond, VA. 23240-0009

Copies of the AST Registration Form and the AST Registration Renewal Form are contained in Appendix X.

7.3.1.3 AST and Facility Notification Requirements

The owner or authorized representative of any AST having a capacity of greater than 660 gallons of oil must notify DEQ within 30 days after any AST:

1. Upgrade;

2. Major repair;

3. Replacement (relocating, or repositioning of an existing AST); or

4. Change in service (i.e. change in operation, conditions of the stored product, specific gravity, corrosivity, temperature or pressure that has occurred from the original that may

affect the tank's suitability for service).

NOTE: Fees are not required for AST Notification.

7.3.2 Individual ASTs Having a Capacity of Less than or Equal to 660 Gallons of Oil

DEQ has no registration, closure reporting, or sampling requirements for the closure of ASTs having a capacity of less than or equal to 660 gallons of oil. If a discharge of oil is discovered during closure, however, the discharge must immediately be reported to DEQ.

Operators wishing to install, remove, repair, or alter any AST that contains a flammable or combustible liquid (as defined in the Uniform Statewide Building Code) must obtain a permit from the building official before initiating that activity. Spills and leaks of flammable or combustible liquids from stationary tanks (including ASTs) must be promptly reported to the local code official.